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# **Executive Summary**

## **Online Communities and their Evaluation**

Creation of a method to assist Online Community Managers to evaluate the performance of their own communities



**Elizabeth McArdle**

Academic Mentor: Paul Jennings

Industrial Mentor: Laura Maxwell

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## Abstract

Online Communities have existed for a number of years but evaluation methods allowing their managers to make decisions are limited. These decisions can take the form of resource prioritisation, choice of specific future development areas or termination of Online Communities. This research document introduces a novel 4-step method that can be used to assist this decision-making.

A number of interpretations as to what is meant by the term “community” are presented from a variety of disciplines before moving onto the newer concept of “Online Community”. The literature does not provide one common meaning for these terms so a definition appropriate for this study was proposed. In this case an Online Community is defined as “a social or business space, supported by technology and Internet tools, in which people with common interests, objectives or values can meet and satisfy their needs”.

Next, current evaluation techniques were reviewed. From this, and from responses from interviews with Online Community Managers, it was clear that a new evaluation method that could answer business questions in a non-resource intensive manner was required. 4 requirements were identified as key to developing a new evaluation method that would provide benefit to the Online Community practitioners:

- It must be simple to implement with minimum use of already limited resources
- It must be flexible to allow customisation for each unique Online Community
- It should allow action to be taken to improve the day-to-day management
- The measures collected must help answer business questions

To enable an efficient process to be utilised it was proposed to use a classification of Online Communities to reduce the complexity of the problem and to condense large amounts of information into a manageable format. After establishing that no existing classification was appropriate a new one with 4 classes was developed, based on data from literature and interviews with Online Community practitioners.

After simplifying the problem by the use of the classification above, attention was turned to generating a new method that would meet the requirements identified previously. This was achieved by extracting key aspects from 3 specific techniques and frameworks, namely The Performance Prism, Performance Measurement Questionnaire and the Extended Web Assessment Method. The resulting method takes account of multiple stakeholders, facilitates definition of measures and recognises the use of perception data in relation to performance evaluation. Supporting material, in the form of flowcharts and templates, was also created to enable the customised measures to be developed in a rapid and resource efficient manner.

The method was tested with two Online Communities and the results discussed. Feedback was captured from the participants and changes were subsequently made to improve the method. In addition it became clear that there was a need to explicitly address the “health” of the community aspect in the supporting material.

From this research it is clear that the performance of Online Communities can be considered on many levels through this 4-step evaluation method; it takes account of the aspects that are important to a specific community, in a rapid manner. It also confirms that it is possible to engage stakeholders in a dialogue about Online Community performance, thus providing data from them to facilitate future decisions.

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Finally, thank you to Douglas for believing in me.



# 1 Introduction

Online Communities have existed for a number of years with authors such as Rheingold (1994) describing this social concept in the 1990s and others (Armstrong and Hagel III, 1996) looking at the phenomena from a business perspective.

At the start of the following decade, the idea of Online Communities and the potential business role that they could undertake was more evident, although there were many areas of focus: Communities of Practice (Wenger and Snyder, 2000), Brand Building Communities (McWilliam, 2000) and e-commerce Communities (Schubert and Ginsburg, 2000). However, despite this move into the business arena there was a lack of written work explaining how business organisations could evaluate the performance of their Online Community.

There were a number of options including value mapping (Allee, 2000), simple web metrics (Totz, Riemer et al., 2002) and ethnography (Carter, 2005). These options have considerable disadvantages and these will be discussed later in this Executive Summary in section 2.6.

It was in this context that this Engineering Doctorate research project was conducted, specifically to address the issue of evaluating an Online Community in a practical, non-time consuming and beneficial manner.

With this in mind this Executive Summary presents the work that was conducted on, and the results of, the research project that sought to help Online Community managers to evaluate their community's performance.

This chapter will:

- State the business case to which the research responds
- Introduce the research focus
- Specify the research objectives
- Outline the overall research methodology
- Provide information as to where to find specific details on the individual stages of the research project

- Offer a guide to how the accompanying research portfolio should be approached
- Provide an insight into the timeline of the project
- Lead the reader through the content of the subsequent chapters

## ***1.1 Issues with Current Online Community Evaluation***

Returning to the suggestion that all organisations need some form of evaluation, this can be substantiated by several works in the field of performance measurement although only two will be discussed here. Fitzgerald et al (1991) suggest that performance measurement allows an organisation to determine whether the chosen strategy has been implemented. Lynch and Cross (1995) state that there are two main strands to performance management. Firstly helping to evaluate whether an organisation was doing the correct things, and if it was doing them well.

This can be translated as “Is the organisation satisfying its customers effectively and efficiently?”. The second aspect of performance measurement that Lynch and Cross (1995) refer to is its ability to motivate behaviour, and specifically to encourage continuous improvement in customer satisfaction, flexibility and productivity.

In the context of Online Communities there is an equally strong need to have some form of performance measurement (Ho, Schraefel et al., 2000; Bennet, 2004). Results from an evaluation could be used to understand the current situation of the Online Community and to trigger actions that would remedy or enhance the situation. A number of examples can be used to show the type of decision support that Online Community evaluation could provide:

- In the case of an Online Community that has been established to promote online sales, it would be limiting to focus on the number of visitors to the site. It would be more meaningful to look at the abandonment rate for transactions. This investigation would enable actions to be considered to rectify the problems that were causing potential customers to leave the site before completing their purchase.
- In the case of an Online Community manager deciding that the target for the number of postings should be increased by 15%, there is the possibility that the quality of the postings will fall as the post numbers increase. Members may post

irrelevant or meaningless messages to meet their quota. Alternatively it could indicate to the members that the organisation is committed to hearing their views, and encourage greater loyalty to the Online Community.

- Consider an Online Community that has suffered a drop in interaction frequency. This could indicate that the community has reached the end of its lifecycle and that the resources it is consuming could be better deployed elsewhere.
- Consider a situation within an Online Community where interactions are increasingly off topic. This could lead to two actions: for the users to be better informed as to the purpose of the community and/or for a "spin-out" Online Community to be created to address the off topic subject.

It is important to remember that actions can be positive (the creation of a new community) or negative (removing members from the community due to inflammatory interactions). Also when setting targets, both the positive and negative behaviour that could result needs to be considered.

Negative behaviour is often referred to as "gaming". This is when individuals adopt tactics, malevolent or otherwise, to achieve performance targets that do not focus on the improvements that management anticipated (Neely and Adams, 2001). For example if management set targets for a setup changeover time, measured as a percentage of the overall run time, there are two ways in which reductions can be achieved. Firstly, the setup time can be reduced. This would be regarded as positive behaviour. Alternatively the run time can be increased, therefore reducing the measured percentage, by increasing the batch size. However this is negative behaviour as now the organisation is producing for stock rather than to meet the customer demand, resulting in increased stock costs, potential obsolete product costs and reduced schedule adherence.

This explains the need for evaluation of Online Communities and in section 2.6 the current options for evaluation will be considered. As a result of the work conducted examining different evaluation options, it became apparent that there was a need for a simple, structured method that would allow Online Community managers to determine specific measures that would address their own unique situation.

## **1.2 Research Focus**

As a result of interviews conducted with Online Community managers and information gained from literature it was apparent that the research project should focus on developing a method to assist Online Community managers to evaluate their own Online Community performance. Hence the following research question was formulated:

**“How can assistance be given to Online Community managers to evaluate their own Online Community performance?”**

The importance of those involved with the Online Community developing the measures was also apparent. This ensures that the measures can be specific to the particular Online Community situation.

To answer this question it was necessary to break it down into a set of objectives and the 6 main ones are shown below in the chronological order in which they were addressed:

1. Define an Online Community
2. Seek out the evaluation techniques currently used to gauge the performance of an Online Community and understand their issues, strengths and weaknesses

This led to the clarification of the research focus and the development of 4 subsequent objectives:

3. Understand the business requirements for an Online Community evaluation method
4. Review other evaluation methods used in other business situations for possible application to Online Communities
5. Create an evaluation method for Online Communities
6. Test and revise the proposed evaluation method



### **1.3 Project Methodology**

When conducting the research, the project did not proceed in a linear manner, with the research question leading to data collection and then analysis before concluding with a report (Blaxter, Hughes et al., 1996). Instead the process followed a more circular approach where several iterations were required. The main benefit of this approach was that it allowed flexibility in the research project. For some of the stages of the research project it was possible to take a deductive approach with the research questions being formulated based on theory and then tested through data collection and subsequent analysis. However in some of the other stages it was possible to utilise an inductive approach. In this case the data was collected and analysed before the theory was developed. Section 1.3.3 provides more details on the actual timeline of the project.

#### **1.3.1 Key Stages in the Research Project**

A map showing an overview of the key stages in the research project is shown in Figure 1. On this diagram the green boxes across the centre of the page represent the key stages in the research project such as "Identify Problem", "Develop Solution" and several feedback loops.

Below these boxes there are a set of blue boxes that represent an action that was undertaken or an output from the research process such as "Provide Online Community Definition".

Above the key stages are 4 question boxes shown in pink. These questions form the basis for the research undertaken at that point in the project.

The final aspect of the map is the link to the portfolio submissions. These submissions are numbered and represented by a yellow oval. Specific titles and contents for each submission are discussed in more detail in Section 1.3.2.

The problem to be investigated was originally identified through a general literature review on e-business, allowing the formation of the first research question:

**“How can an Online Community be evaluated?”**

In the initial stages this question was to be considered from the perspective of a member. However an opportunity to gain access to Online Community managers caused the research question to be adapted, evaluating the Online Community from the owner/manager perspective rather from the individual member.

To complete the objectives set for this part of the project several data collection techniques were involved. The most rigorous of which were the interviews with Online Community managers, and literature searches on Online Communities. A literature critique on Online Communities was developed and the responses from the interviews were analysed using graphical techniques and simple coding. In order to gain wider practitioner knowledge of the subject it was decided to also attend a conference and join an Internet based mailing list focusing on Online Communities.

These activities allowed for the clarification of the problem, including a definition of what was meant by the term “Online Community” in the context of this research, and the subsequent adoption of a new research question:

**“How can assistance be given to Online Community managers to evaluate their own community performance?”**

During stage 5, “Develop Solution”, two main outputs were created. Firstly a classification of Online Communities, based on the analysis that had taken place on the interview data and the literature critique, was generated. This provided a way to simplify and to speed up the evaluation.

The second output was an evaluation method that could be applied by Online Community managers in their own unique situation. This was addressed using data collected from a literature review on a number of performance measurement frameworks before a report was produced outlining the possible advantages and disadvantages of each in answering this question. Again it was decided to join an Internet mailing list that focused on the topic of interest, in this case performance measurement, in order to gain wider experience of the practitioner knowledge.

After the evaluation method was created it required testing and as such two further questions were introduced to drive the research:

**“How is the evaluation method used in practice?”**

**“Does the method assist in evaluating Online Communities?”**

These questions led to the use of pilot studies. Two organisations were selected to participate and data was collected through a variety of techniques including participant observation, documentation and participant feedback.

Completing this research project was the revision of the evaluation method for Online Communities and the supporting theory. This ultimately led to the proposal for further research building on this work.

### **1.3.2 Portfolio Guide**

In order to support the research summarised in this Executive Summary, there are a number of documents that have been prepared and submitted to the research portfolio. As mentioned previously, Figure 1 represents the basic outline of the research project from initial problem identification through to testing and refining the proposed solution. It also shows the contribution that each submission makes to the overall project. These submissions are represented by the yellow oval shapes, at the top and the bottom of the diagram. The key points that can be drawn from each submission are outlined below:

Submission 1: e-business and Small Manufacturing Organisations – A background report on current e-business definitions, technologies and applications within the manufacturing sector

- Provides the background to the concept of e-business and its role within manufacturing
- Clarifies the importance of e-business
- Introduces some e-business models
- Presents some examples of e-business within the manufacturing, construction and engineering fields



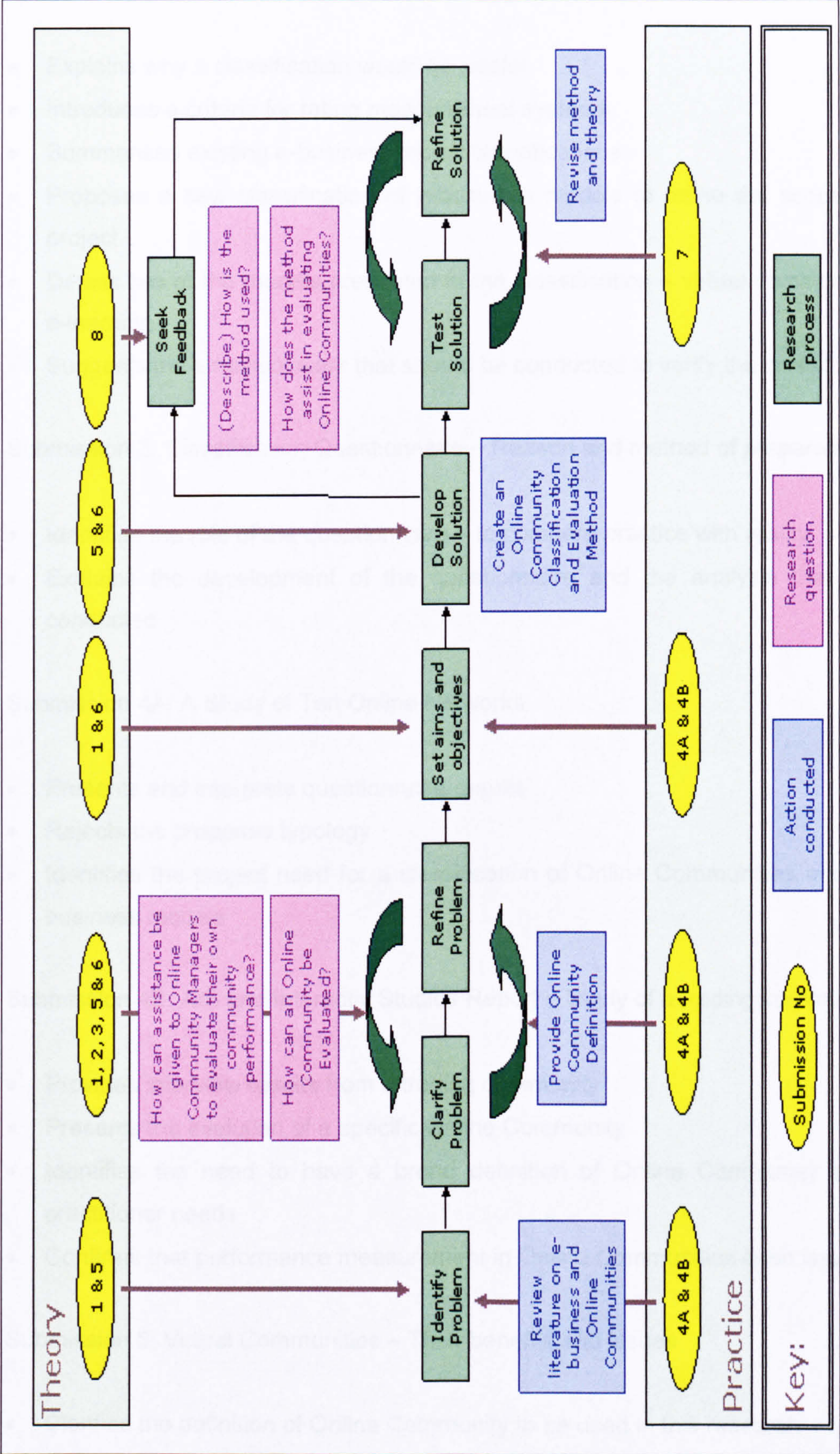


Figure 1: Key Stages in Research Project and Corresponding Portfolio Submissions



## Submission 2: e-business Communities – A classification of online business networks

- Explains why a classification would be useful
- Introduces a criteria for rating measurement systems
- Summarises existing e-business model classifications
- Proposes a new classification of e-business models to refine the scope of the project
- Details two of the models presented in the classification – virtual community and e-learning
- Suggests the empirical work that should be conducted to verify the classification

## Submission 3: Classification Questionnaire – Reason and method of preparation

- Identifies the role of the questionnaire – to compare practice with reality
- Explains the development of the questionnaire and the analysis that will be conducted

## Submission 4A: A Study of Ten Online Networks

- Presents and interprets questionnaire results
- Rejects the proposed typology
- Identifies the project need for a classification of Online Communities and not e-business models

## Submission 4B: AIS and Interactiv Studios Report – Study of a trading community

- Provides interview results from a trading community
- Presents the evolution of a specific Online Community
- Identifies the need to have a broad definition of Online Community to meet practitioner needs
- Confirms that performance measurement in Online Communities is an issue

## Submission 5: Virtual Communities – Their benefits and issues

- Clarifies the definition of Online Community to be used in this research

- Develops a classification of Online Communities
- Presents current evaluation methods for Online Communities and their issues

**Submission 6: Performance Measures and their Application to Online Communities – Development of an Online Community evaluation method**

- Clarifies the business requirements for an evaluation method
- Develops a solution to assist Online Community Managers to evaluate the performance of their own community

**Submission 7: Testing an Online Community Evaluation Method – A study of two cases**

- Explains the testing strategy employed
- Analyses the individual pilot studies
- Compares the two studies
- Presents recommendations for revising the solution

**Submission 8: Publication of Research to a Wider Audience of Academics and Practitioners - UKAIS 2004 (McArdle and Jennings, 2004) & PMA 2004 (McArdle and Jennings, 2004) conference papers**

- Presents the reasons for conference publishing
- Highlights the feedback received and the learning that resulted from writing and presenting papers

It is suggested that the submissions are read in the order 1, 2, 5, 3, 4A, 4B, 6, 8 and 7, although the key aspects of the supporting literature, the evaluation method creation and the testing of the method are focused within submissions 5, 6 and 7.

### **1.3.3 Project Timeline**

As mentioned previously the work was not conducted in a sequential manner. Sometimes it was an iterative process and at other times opportunities presented themselves that led the research in a new direction.



Initially the work scope was quite broad, looking into various topics that fell within the area of e-business. At this time the work was being sponsored by IBM Lotus and is covered within Submission 1 (see Figure 2). Classifications were viewed as a way to narrow the scope of the work and time was devoted to exploring the options that this provided and this documented in Submission 2.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Year 1											1	
Year 2										2		
Year 3	3										5	
Year 4								4A				8
Year 5							6, 7				4B	E.S
Exam										Exam		

Current			R									
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Figure 2: Submission Schedule

To ensure continued funding for the project, discussion took place with a software development company (VBN) who specialise in Online Community software. With their assistance, and opportunities offered by the university and business contacts, several Online Community Managers were identified. Submission 3 was created to explain the design of the data collection from these contacts. The interviews took place over an extended period in Year 2 and were documented in Submission 4A. Results of this work were presented to a conference of VBN customers.

In conjunction with this, work had begun on reviewing the literature connected with Online Communities and gaining insights into practical aspects through the membership of a mailing list on this topic. These insights were pulled together in Submission 5.

In Year 3 a new sponsor for the work was identified, AIM. This provided access to their Online Communities as potential testing grounds for the proposed method that is the conclusion of Submission 6. To get a broader impression of the potential value one of the engineering organisations that participated in the interviews was also contacted. The results of these pilot studies were written up in Year 5.



Using these documents as a basis the Executive Summary (ES) an exam presentation was generated. As a result of the outcome of the exam there was an opportunity to revisit new aspects of the literature. This social science based viewpoint was incorporated into the Revised Executive Summary (R).

## **1.4 *Introduction to Executive Summary***

This Executive Summary consists of 8 chapters that deal with different aspects of the research project, ultimately addressing the objectives presented in section 1.2, Research Focus.

In Chapters 2 and 4, the key aspects of the two literature reviews that were conducted are presented. Chapter 2, focusing on Online Communities, first seeks to explore the meaning of community before it defines the term Online Community. It also suggests why this phenomenon exists and discusses current options for evaluation, along with their short-comings. Chapter 2 concentrates on addressing objectives 1 and 2 (section 1.2). In addition it presents the key business requirements for the evaluation solution, thus addressing objective 3 (section 1.2).

The Classification of Online Communities that was created in order to simplify and quicken the evaluation process is presented in Chapter 3. This classification, one of the novel aspects of the research, was based on the literature reviewed and the data gathered from interviews with Online Community managers.

Chapter 4 relates to performance measurement literature, addressing objective 4 (Section 1.2). It is not intended as an exhaustive review of this field. Instead, several popular frameworks and techniques are discussed in terms of how aspects of them could be utilised to provide an evaluation method for Online Communities. 3 specific cases will be discussed:

- Performance Prism
- Performance Measurement Questionnaire
- Extended Web Assessment Method

Chapter 5 introduces the proposed evaluation method for Online Communities. This includes highlighting the decisions made when developing the method and the reasoning behind each of these. It also provides details on the supporting material used within the sessions at which the method was applied. This chapter answers objective 5 (Section 1.2) of the research project.

The final objective to be addressed, testing the method (objective 6 Section 1.2), is covered in Chapter 6. This testing was conducted with an embryonic management research community and an established engineering research community. A description of each of these communities, as well as the results of the pilot studies are individually presented and discussed.

This chapter also provides an insight into the similarities and differences of applying the evaluation method in these two cases. One of the key insights was the failure to measure the community “health” rather than focusing purely on “hard” outcomes. Building on this realisation a suggested resolution to this restriction is proposed. Finally, this is the chapter of the Executive Summary where the limitations of the evaluation method are discussed and its range of applicability is presented.

Suggestions for future work are outlined in Chapter 7, based on the findings in Chapter 6. Finally, the conclusions of the research project are stated in Chapter 8.

## **1.5 Summary**

If organisations that adopt Online Communities, a phenomenon that has been present for a number of years, are to make better decisions concerning their communities there is a need to evaluate them. Evaluation will assist the Online Community managers make decisions concerning funding, priorities and also the direction of the group.

This research was conducted in order to provide an evaluation method that could be applied to this phenomenon.

## **2 Online Communities and their Relevance to Manufacturing**

### ***2.1 Introduction***

Before it is possible to consider the evaluation of Online Communities there must be a common understanding of this term. Within this chapter, attention will first be focused on a general discussion of what is represented by the term “community”. It has to be emphasized that this is not intended as an exhaustive review of the definitions of community. Instead the purpose of this exercise is to create a deeper understanding of the traditional aspects of “community” with a view to utilising this information within the future evaluation method. Using the aforementioned social science literature as background, the discussion will next turn to the specific area of Online Community.

Within literature neither of these terms, community and Online Community, have single agreed definitions. For practicality a working definition will therefore be presented to ensure a common understanding within this research.

Beyond the theoretical concepts it is important to relate this information back to the world of engineering. To achieve this some current examples of Online Communities within engineering and manufacturing environments will be introduced. There will also be an opportunity to examine the practical usage of the term Online Community and how this relates back to the theoretical perspective. Survey data collected from 10 Online Communities ranging across several industries are used in this quest. The intent of this is to provide a practical understanding of Online Communities.

Finally this chapter will address the subject of existing evaluation methods of which several prominent options will be explored. Ideas can be extracted from each of these options but no single option on its own will allow an Online Community Manager to take a “snapshot” of the performance of their individual Online Community. Thus the limitations of each current method will be highlighted.

## 2.2 Community

Community has been described in different ways by a number of authors (Cohen, 1985; Jones and Rafaeli, 2000; Bannon and Griffin, 2001). Delanty (2003) within his work entitled "Community" suggests that the domain within which the author works will affect the definition of this term and that it is currently in transition due to changing political, cultural and social environments.

Firstly he proposes a definition favoured by sociologists. In this community is a social organisation based on small groups, such as neighbourhoods or some other spatially bounded locality. In the main this way of thinking is echoed by a number of authors (Bell and Newby, 1974; Bruce, 1999; Moffitt, 1999) although some have a slight variation. For example Bruce (1999) agrees that the term implies a small group of people and he does make explicit that the interaction within the community is face-to-face thus placing a geographical boundary on it. Others (Bender, 1978; Kollock and Smith, 1999; Bannon and Griffin, 2001; Turban, King et al., 2002; Friesen, 2004) also focus on the interaction within the group citing community as comprising complex relationships. However Bruce (1999) also makes clear that there is a time element by stating that the members are linked by social ties that endure over long periods of time. Another discrepancy is that Bruce (1999) suggests that these ties exist over many areas of business whereas Kollock (1999) focuses like Delanty (2003) on social networks. Although business is not explicitly defined in this context it is taken to represent multiple transactions or tasks rather than purely a social interpretation as he mentioned a crofter dividing up common grazing – a business rather than social task. Over time the meaning of community has changed (Cole, 2002) from the original geographically bounded one to meaning a group of people who "hold something in common" such as a sense of identity or interest.

Taking the perspective of an anthropologist Delanty (2003) suggests that "community is a culturally defined group". Key to note here is there is no discussion of boundaries in terms of geographical limitations but instead it is implicit that there are cultural boundaries which could take the form of rituals or norms. Other authors (Bell and Newby, 1974; Stacey, 1974; Cohen, 1985; Lesser and Storck, 2001) also make comment on the social system aspects of the community, along with sense of belonging or common life. Wellman and Gulia (1999) dispense with the idea of



geographical boundaries and instead look towards social networks of friends or relatives.

Delanty's (2003) final offering on the definition of community is from a philosophical standpoint in which he describes community as an ideology or utopia.

McKenna (1998) questions the validity of using the word community as a "warmly persuasive" way to describe relationships within a social group – an ideal state - to diminish the value of "mere associations". He contends that the distinction is a simplification of the true phenomenon and has an impact on the definition used for Online Communities which will be discussed later in this chapter.

In a similar vein Bauman (2001) ventures that "'community" stands for the kind of world which is not, regrettably, available to us – but which we would dearly wish to inhabit and which we hope to repossess". He does provide a more substantial element to the meaning of community when he suggests that it is based on shared understanding but cautions that when this understanding is made explicit it becomes subject to scrutiny and this signals the end for that specific community. He bases this on the work of Redfield who discusses community in the sense of a fortress of sameness which needs constant defence from outside groupings. Essentially community cannot exist if it is describable and it must not be allowed to evolve through contact with those outside the community. The most practical element that can be drawn from this text is the idea that there are two forms that community can take:

- Aesthetic communities which are based on transient individually experienced events or interests. These are sometimes known as peg communities from the idea that you hang your relationship on them temporarily like a jacket on a coat peg
- Ethical communities which are formed based on long term commitments and obligations

One aspect that emerges from this idealist notion of community is social capital which some authors believe underpins all communities. In essence social capital is the "value" or benefit that can be attributed to a community. It consists of the connections within the community, built on trust and shared values or norms, that can



be utilised to make mutually beneficial actions possible (Haythornthwaite and Wellman, 2002; Quan-Haase, Wellman et al., 2002; Cox, Patrick et al., 2003).

Some authors encompass ideas from more than one domain which is perhaps as a result of the need for cross thinking in their evolving environments within Online Communities – a new field. For example Mynatt et al (1997) talk of a social grouping with boundaries and an ongoing rhythm which is reminiscent of the cultural aspects put forth by anthropology. However, they also mention shared spatial relations. Although this is not specifically a geographically bounded group in the “real world” there is a shared space where the community interacts. This could be as simple as a message board but it supports the idea that “shared location” whether real or virtual is important.

From these various standpoints there are certain common elements and there will be potential to address these within the evaluation system:

- Communities are comprised of people interacting with each other whether in a business or social setting
- Community concerns “belonging” which involves the use of some type of restrictive entry or boundary to create “insiders” who appreciate the norms and rituals
- Communities require some level of social capital to ensure their ongoing value to members

## ***2.3 Definition of an Online Community***

### **2.3.1 Networked Community**

At the onset of this section it is important to distinguish between the concept of a networked community and Online Community. A networked community or community networking project typically refers to an attempt to use ICT to support a wide range of community based services within a geographic location (Bannon and Griffin, 2001). Various networked communities have been documented and Bannon and Griffin (2001) provide a summary of a number of these projects. One of the most famous of these is the Blacksburg Electronic Village which is reported upon by Kavanaugh and

Patterson (2002). Results from this study documented by Kavanaugh (1999) state that not only did they achieve high levels of Internet connectivity but also showed that social networks could be expanded through the use of ICT. However, the results from these studies are not all positive. Bannon and Griffin (2001) suggest that often they have found that projects adopt a “technology-push” approach instead of focusing on how the technology can be utilised by the community groups for their own purposes.

Although there is potential to use the evaluation method for such a project it needs to be clarified that not all Online Communities are born from a desire to bring offline geographical groups into a computer network. Also the focus of some of these networked communities can be purely on providing access to the Internet rather than creating any form of community on the Internet.

### **2.3.2 Online Community**

Like the term “Community” before it “Online Community” has triggered much discussion as to what it actually means. Some suggest that time spent online restricts the involvement of citizens at a local level regardless of whether their online activity has a social element (Baym, 1998; Castells, 2001; Haythornthwaite and Wellman, 2002) thus essentially questioning the validity of an “online” community. The only redemption would be if the Online Community were to increase involvement in local geographical interactions. Some research has been conducted on the impact of Internet usage on sociability and whether time spent online in a community has a negative impact on relationships in the local geographical community. Summaries of these studies provide a conflicting picture with views of an increase in isolation and depression in some results and an increase in local community involvement in others (Timms, Ferlander et al., 2001; Haythornthwaite and Wellman, 2002). However, it must be recognised that people do not interact in only one community instead they engage with various specialised communities to address different needs (Castells, 2001; Haythornthwaite and Wellman, 2002). This interaction with a specialised community can, in some cases, only be made possible through the Internet.

If the stance is taken that a community is a collection of social ties (Hampton and Wellman, 2002) then it follows that an Online Community must also be a collection of social ties, albeit they may be classed as weak ties. The use of technology to maintain these ties means that the need for co-location is removed and communities

can be freed from a geographical constraint, although the community must still have a “space” to allow their members to sustain these ties. Lutters and Ackerman (2003) provide an insight into a traditional text based dial up system whereas Hall and Graham (2004) discuss a more modern system - a Yahoo e-group.

Looking at the literature focusing specifically on Online Communities rather than the general term community it can be found that essentially most authors refer to 4 key elements, albeit to varying degrees:

- People
- Technology
- Shared values and interests
- Depth of interest

Hagel and Armstrong (1997), one of the early commercial proponents of Online Communities, clearly recognise the people element by stating that “virtual communities are about aggregating people”. Schubert and Ginsburg (2000) also make the point that Virtual Communities are about the union between people, which not only supports the people element but also hints at a depth of interest as a “union” conjures images of long term interactions. In fact any author that makes reference to interaction or member generated content must implicitly suggest that people are a key element. In practice people (Rheingold, 1994; Benjamin, 1998; Kalakota, Ticoll et al., 1998; McKenna, 1998; Cothrel and Williams, 1999; Fernback, 1999; Brown and Duguid, 2000; Cothrel, 2000; Ho, Schraefel et al., 2000; Kim, 2000; McWilliam, 2000; Preece, 2000; Williams and Cothrel, 2000; Castells, 2001; Mowbray, 2001; Hunter, 2002; Rowley, 2002; Shumar and Renninger, 2002; Turban, King et al., 2002; Lee, Vogel et al., 2003) and the technology element are widely recognised as necessary for an online community.

The second element mentioned is technology which can take the form of hardware (servers, switches and computers) or software (operating systems, content management systems and chat rooms). Technology should be chosen that is appropriate to the requirements of a specific community who may have varying levels of IT skills. It is also important to note that as the Online Community evolve the technology requirements may change (White, 2003). However, this note on technology is not to say that technology is more important than shared values or a



depth of interest. However, without the technological infrastructure it is not possible for an Online Community to exist. Technology is an essential components in an Online Community (Rheingold, 1994; Hagel III and Armstrong, 1997; Benjamin, 1998; Kalakota, Ticoll et al., 1998; McKenna, 1998; Cothrel and Williams, 1999; Brown and Duguid, 2000; Cothrel, 2000; Ho, Schraefel et al., 2000; Kim, 2000; McWilliam, 2000; Preece, 2000; Schubert and Ginsburg, 2000; Williams and Cothrel, 2000; Castells, 2001; Mowbray, 2001; Maclaran and Catterall, 2002; Rowley, 2002; Shumar and Renninger, 2002; Turban, King et al., 2002; Lee, Vogel et al., 2003; Carr and Chambers, 2006). Some authors have made reference to specific forms of Online Community space such as web sites or bulletin boards but others have recognised that the technology only provides a support structure so key to it is the easy of use and suitability for the specific community audience.

Throughout the literature there is no evidence to suggest that an Online Community must exist only on the Internet. Some begin as pure Online Communities and have members later meet up such as the WELL (Rheingold, 1994), other such as the Ford Best Practice Replication Database (Dixon, 2000) began as face to face communities that now require an online component to gain greatest leverage across the parent organisation.

Bringing people together is not enough for an Online Community to form. There must also be some reason for people to engage with one another and this often is a result of a common interest or shared values. Several authors have stated this within their definition of Online Community (Rheingold, 1994; Hagel III and Armstrong, 1997; Benjamin, 1998; Brown and Duguid, 2000; Kim, 2000; Preece, 2000; Schubert and Ginsburg, 2000; Carr and Chambers, 2006). Others (Kalakota, Ticoll et al., 1998; Ho, Schraefel et al., 2000; Williams and Cothrel, 2000; Hunter, 2002; Lee, Vogel et al., 2003) have been quite specific about the type of activity that brings the people together. In their definition they see collaboration as a major driver either in a supply chain or in a non-business setting. Rowley (2002) suggests a common bond needs to be shared by the community members or a sense of identity (McKenna, 1998; Fernback, 1999).

Depth of interest is often not explicitly stated in literature. Also it is perhaps the most contentious element of an Online Community definition. It seems clear from the literature that some authors believe that interaction with another within the community only once is acceptable (Hagel III and Armstrong, 1997) whereas others

feel that the interaction must be sustained over a period of time to allow trust and true relationships to develop. When delving into the aspects of appreciating “returns” from an Online Community that Hagel and Armstrong (1997) describe – content attractiveness, member loyalty, member profiles and transaction offering - it can be seen that many of these relate to getting people to join the community so that they will spend money and that offerings can be better targeted rather than actually providing a space to build lasting relationships. Member interaction is encouraged in order to increase the attractiveness of content, allowing new members to be enticed into the community. They then attempt to “lock-in” traffic through any relationships that develop between members. However, when they speak of member loyalty, one of the key areas of focus is churn rate which is rather a negative perspective. As Kim (2000) states “people may come to community for the content, but they’ll stay for the relationships”.

Lee et al (2003) state that one of the key aspects of Online, or Virtual, Communities is that the interaction and topics are driven by the participants. This is what distinguishes them from an online information service.

Cothrel (Cothrel, 2000) also takes a softer view on the requirement for depth of interest and sustained relationships developed over time. From his perspective, any site that allows user generated content provides the opportunity for many-to-many interaction and therefore the basis of community. However, in an earlier text, he and Williams state that their research has led them to see community as “a group of people who are willing and able to help each other” which suggests ongoing relationships and the development of social capital. This is not consistent with their view of single time interactions or posting of content without any peer interaction.

At the other end of this spectrum Rheingold (Rheingold, 1994) takes the view that depth of interest and ongoing interaction are critical to an Online Community. As one of the first to define the concept, he approached it from a social and political viewpoint. Much of his writing covers issues such as mutual support and the power of electronically enabled local communities with regard to political issues. He states that:

**“Virtual Communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough,**

**with sufficient human feeling, to form webs of personal relationships in cyberspace.”**

**(Rheingold, 1994)**

The time element of the relationships is echoed by Kim (Kim, 2000). Over time the relationships are built and also tacit assumptions and rituals are developed (Baym, 1998; Benjamin, 1998; Fernback, 1999; McWilliam, 2000; Preece, 2000; Shumar and Renninger, 2002; Lee, Vogel et al., 2003; Carr and Chambers, 2006).

Rowley (Rowley, 2002) like a number of authors states trust is fundamental to the community and provides practical guidance by suggesting 6 ways in which trust can be built within an Online Community. Trust can be seen as an output of building long term relationships which suggests that her work supports Rheingold's view of deep, ongoing interest and relationships. Identity persistence is another aspect that supports trust and ongoing relationships (Kollock, 1999).

Turner et al (2001) provide an alternative view on the relationship types that could be related to the interest depth. They suggest that, depending on the environment, the communications between members take one of 3 forms:

- Impersonal for task based activities which is also echoed by the study conducted by Hall and Graham on the Cipher Challenge (2004)
- Interpersonal for social exchanges
- Hyperpersonal for more open and deep relationships than those typically generated in a face to face situation

If these 3 levels of communication can all exist with an Online Community then it is clear that the type of community can vary enormously in terms of social connections and relationships. Perhaps this reflects the “multilayered quality of communicative space” discussed by Shumar and Renninger (2002), with the different intensities of interaction being separate layers of communications. This is further evidence that there is no one single ideal format for an Online Community. This provides a challenge for any potential evaluation method as it is not simply a case that one solution will fit every situation. Potentially the complexity of creating a new evaluation method for each unique Online Community could be reduced through the application

of a classification. This would group Online Communities based on a particular characteristic of interest and is the approach promoted in Chapter 3.

Jones and Rafaeli (2000) use the term "Virtual Public" to describe a computer mediated interpersonal space as distinct from a "Virtual Community" which has in addition a supported social network with strong or weak ties. In their work it is clear that they do not share the belief of other authors and state that the users of Amazon do not constitute community through reviewing and browsing each other's content.

From a simplistic view point, as Online Communities grow larger it is much harder to sustain trust based relationships as the sense of intimacy is lost (Hagel III and Armstrong, 1997; Hall and Graham, 2004). Therefore if a restriction was placed on using Online Community to only define a technologically supported space where members had strong relationships which had been built up over time then eBay and Amazon and various other commercial bodies could not claim to be Online Communities.

One specific form of community, both online and offline, which is gaining wider application within industry is a Community of Practice. This is portrayed as a way to support knowledge management and learning within a company. This sharing of knowledge beyond the work team's borders and the desire to learn are cited as essential to compete in today's competitive environment (Peters, 1992). Wenger, McDermott and Snyder (2000; 2002), the most cited proponents of this perspective suggest that:

**"Communities of Practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interaction on an ongoing basis. "**

**(Wenger, McDermott et al., 2002)**

In their initial work they tend to focus on geographically located people, working in a face to face environment. However, later in their book they acknowledge the role of distributed Communities of Practice, where the main mode of interaction is not face to face but either by telephone or some other electronic medium.



A number of other authors have also continued this theme with Logan and Stokes (2004) focussing in on collaboration using the Internet as a medium to support “informal knowledge communities”. Their perspective is that these communities, which are not part of the formal organisational structure, provide a place to discuss and resolve common problems. Like the previous discussion on Online Community, the 4 elements are still valid. A Community of Practice is made up of individuals within an organisation, who may either be selected or may volunteer, to join a community which is based around a subject of interest to them personally. For the community to be sustainable there needs to be some interaction brought on by the depth of interest. It must be recalled though that Wenger and McDermott (2002) have stated that peripheral learning takes place for those that “lurk” and the value of this should not be discounted. This is not the view expressed by Hunter (2002) who suggests that a person must be a contributor and not just a recipient.

There are certainly other authors (Palloff and Pratt, 1999) that believe that interaction between learners in an online learning environment is key to success. As the information is shared by the learners, their discussions allow them to give meaning to the ideas and therefore create knowledge. Some studies have suggested that this is preferred to instructor led learning. Like the other Online Communities discussed earlier, there are a number of underlying themes that need to be developed such as trust, respect and empowerment.

It is clear from the literature that there is no single accepted definition of an Online Community. Indeed an Online Community may be referred to by different names such as Virtual Community, e-business Community or Knowledge Community. Many authors have voiced an opinion based on their particular perspective as to this entity. Table 1 relates the 4 aspects to supporting texts from other authors:

- People – Unsurprisingly, most authors claim that Online Communities involve people. In some case the people element is presented in a disguised manner, using terms such as users, customers or buyers.
- Technology - Technology is often implied in the terms rather than directly included in the definition. These are clearly applications of technology used as an enabler for the Online Community.
- Shared values and interests - The third element, shared values, can also be thought of in terms of common interests or common goals. This can be



represented as a shared culture, interest in specific topics like a common industry segment or even a desire to dominate a specific market.

Elements	Relevant Texts
People	(Rheingold, 1994; Schuler, 1996; Hagel III and Armstrong, 1997; Benjamin, 1998; Kalakota, Ticoll et al., 1998; Moore, 1998; Carver, 1999; Cothrel and Williams, 1999; Rappa, 1999; Siegel, 1999; Williams, 1999; Ho, Schraefel et al., 2000; Preece, 2000; Schubert and Ginsburg, 2000; Wenger and Snyder, 2000; Williams and Cothrel, 2000; Bannon and Griffin, 2001; Earl, 2001; Kannan, Chang et al., 2001; Baxter, 2002; Powazek, 2002; Rowley, 2002; Sawhney and Prandelli, 2002; Turban, King et al., 2002; Wenger, McDermott et al., 2002; Worthington and Boyers, 2002; Conway, Combe et al., 2003; Lee, Vogel et al., 2003; Friesen, 2004)
Technology	(Rheingold, 1994; Schuler, 1996; Hagel III and Armstrong, 1997; Benjamin, 1998; Kalakota, Ticoll et al., 1998; Moore, 1998; Cothrel and Williams, 1999; Rappa, 1999; Siegel, 1999; Williams, 1999; Ho, Schraefel et al., 2000; Preece, 2000; Schubert and Ginsburg, 2000; Wenger and Snyder, 2000; Williams and Cothrel, 2000; Bannon and Griffin, 2001; Earl, 2001; Kannan, Chang et al., 2001; Baxter, 2002; Powazek, 2002; Rowley, 2002; Turban, King et al., 2002; Wenger, McDermott et al., 2002; Worthington and Boyers, 2002; Lee, Vogel et al., 2003; Friesen, 2004)
Shared values and interests	(Rheingold, 1994; Schuler, 1996; Hagel III and Armstrong, 1997; Benjamin, 1998; Kalakota, Ticoll et al., 1998; Carver, 1999; Cothrel and Williams, 1999; Rappa, 1999; Williams, 1999; Ho, Schraefel et al., 2000; Preece, 2000; Schubert and Ginsburg, 2000; Wenger and Snyder, 2000; Williams and Cothrel, 2000; Bannon and Griffin, 2001; Earl, 2001; Kannan, Chang et al., 2001; Baxter, 2002; Rowley, 2002; Sawhney and Prandelli, 2002; Wenger, McDermott et al., 2002; Worthington and Boyers, 2002; Conway, Combe et al., 2003; Lee, Vogel et al., 2003; Friesen, 2004)
Depth of interest	(Rheingold, 1994; Schuler, 1996; Benjamin, 1998; Kalakota, Ticoll et al., 1998; Moore, 1998; Rappa, 1999; Siegel, 1999; Preece, 2000; Schubert and Ginsburg, 2000; Wenger and Snyder, 2000; Williams and Cothrel, 2000; Bannon and Griffin, 2001; Earl, 2001; Baxter, 2002; Powazek, 2002; Rowley, 2002; Turban, King et al., 2002; Wenger, McDermott et al., 2002; Worthington and Boyers, 2002; Lee, Vogel et al., 2003; Friesen, 2004)

Table 1: Elements of Online Community

- Depth of interest - It has been suggested that there needs to be some form of depth to the interest. This is a more controversial element, with some authors suggesting that some Online Communities are “more like bus stops than communities” (Benjamin, 1998), due to the limited or single interactions between users. Rowley (2002) insists that “information exchange in no way constitutes a community”. However, others may counter that interaction in any form, either contributing user generated content or purchasing an item, take a commitment of time from the person involved thereby indicating some level of depth to their interest.

Based on the literature and taking a pragmatic approach it was decided to adopt a broad definition. By doing so those Online Communities that had been generated or had evolved primarily to support social relationships could focus on measures that promoted this need. Other commercially focused Online Communities could instead determine measures which helped them to understand if their goals of capturing attractive user generated content and gaining insights into the way people used their products were being achieved. By using such a definition it was hoped that this would make it easier to apply the research in a practical setting, as the definition would match what the practitioners believed.

It can be seen that there are a variety of different reasons for an Online Community space being created. This leads to the idea that there is a need for different methods to evaluate the assorted Online Communities. For the evaluation to be efficient this variety could be managed through the use of a classification rather than trying to deal with each unique circumstance.

Based on the examination of the literature the following definition of Online Community, in terms of this research project was proposed:

**“An Online, or Virtual, Community is a social or business space, supported by technology and Internet tools, in which people with common interests, objectives or values can meet and satisfy their needs.”**

When considering Online Communities there are two further important aspects to consider. Firstly a community cannot be forced (Siegel, 1999; Kim, 2000), it is merely possible to provide an environment in which one may flourish. This supports the need

for ongoing evaluation, specifically investigating whether the environment is appropriate and whether a community is present.

Secondly it has been suggested that Online Communities will supplement not supplant existing communities (Benjamin, 1998). For this reason it is important to consider an Online Community in the context of the overall organisational objectives, not as an isolated entity.

## ***2.4 Online Community in Engineering/Manufacturing***

Now that the concept of an Online Community has been introduced, attention can be focused on the application of this concept within the context of a manufacturing or engineering environment. This sub section presents three examples of Online Communities and outlines how these have affected the overall organisation.

### **2.4.1 Communities at Caterpillar**

Source: (Ardichvili, Page et al., 2003; Stuedemann, 2004)

Caterpillar Inc, a multinational manufacturing company specialising in heavy construction and mining equipment has adopted Online Communities to share and generate knowledge. The company has more than 1800 Online Communities which are used to connect 27000 registered users across many locations. Cultural influences on the willingness of employees to use the system do differ across location (Ardichvili, Maurer et al., 2006). Support is given to these communities by the Knowledge Network, an intranet-based system, and by the Knowledge Management technology experts at the corporate university. The Knowledge Network allows users to locate subject experts and engage in online chats. It also provides an infrastructure to allow connections to be made across Online Communities, leading to the potential for developing new areas of knowledge.

Specifically Caterpillar considers this community system to provide 5 main benefits:

- Faster integration of new employees into work areas
- Provision of community space for geographically dispersed colleagues
- Development of a best practice database which is open to all staff
- Faster location of information

- Problem solving tool through shared past knowledge and access to experts

#### **2.4.2 Ford Motor Company and Information Sharing Communities**

Source: (Williams and Cothrel, 2000; Winkelen, 2003)

Ford Motor Company, a global automotive company, developed its intranet with the purpose of promoting information sharing amongst employees. This was in response to a survey conducted in 1994/95 which identified that employees could only access 50% of the information they needed. Although the communities within Ford were only in their initial stages at the time of the study, there were a number of benefits realised:

- Contributions were being made to the Engineering Knowledge Base which reduced the cost of maintaining ISO 9000 documentation requirements
- Systems, tools and processes help functional specialists maintain contact even through they are dispersed across Vehicle Centres - this is comparable with the original study reported by Wenger et al with regard to Chrysler (Wenger, McDermott et al., 2002)
- Best practice can be replicated across groups that conduct the same work in different locations
- Employees now have somewhere to locate the “expert” even if they cannot find the information that they require
- Access to information within a community provides the basis for innovation

#### **2.4.3 Communities within Shell**

Source: (David, 1998; Butler, 2002)

Shell International Exploration and Production, a global energy company, has adopted Communities of Practice to enable them to share information and resources globally following the philosophy of “working smarter not harder”. Through the use of these communities they have achieved:

- Sharing and cross fertilisation of ideas between 18000 engineers worldwide.
- Recognition by the employees of a new medium to help facilitate learning and offering the opportunity to teach and be recognised for their expertise.



- \$200 million in savings in 2000, rising to nearly \$1 billion in 2001. Examples given include oil production increases and safety improvements.
- An increase in social capital within the organisation through increased connections among individuals.

These three examples of Online Communities demonstrate that Online Communities have direct relevance to manufacturing and engineering. This can take many formats, although most current reports focus on Communities of Practice. The main benefits that drive the implementation of these Online Communities are the ability to share knowledge (there is recognition that tacit knowledge can be better communicated in this environment) and the generation of new applications of knowledge. Both of these factors contribute to sustaining innovation within the organisation.

It would be more helpful if there was a method available to validate and quantify the benefits from these Online Communities rather than rely on benefit statements such as “Common information store for distributed groups”. Then the justification for resource investment would be clearer and more robust.

## ***2.5 A Study of 10 Communities***

During the research there was an opportunity to interview Online Community managers from 10 communities. This allowed their perspectives of what an Online Community was to be captured and allowed for examination of some of the concepts from literature against real world examples. A full discussion of the results from these interviews is contained within Submission 4A (McArdle, 2004) but 4 key areas are highlighted for consideration here.

### **2.5.1 Community as a Social Organisation Linked to a Geographical Group**

From the interviews with Online Community Managers it is clear that they are not restricted to within a single physical geographical location (Table 2). Out of the 11 interviews, only 2 participants indicated that their Online Community was “local”. A further one specified their Online Community coverage as County wide. Therefore in



general these Online Communities do not support the idea of a geographical location as being a boundary.

Geographical Coverage	Count	Percent
Local	2	14
County	1	7
Regional	5	36
National	1	7
International	5	36

Table 2: Geographical Coverage

If, however, instead of focusing on a geographical location and looking at whether these Online Communities support the idea of a shared location on the Internet a different view can be formed. Looking at Figure 3 it can be seen that a virtual shared location must be in place for online articles and directories to exist. Therefore there is a shared location but it is not physical but virtual.

Figure 3 shows that a number of tools are used in the Online Community space. Some of these are focused on supplying information to the members such as the directories, newsletter and online articles. Others are more suitable for sharing information across the membership to achieve a set goal and/or promote interactions such as message boards, chatrooms and collaboration software. From the results in Figure 3 it is clear that these Online Communities are better equipped to supply information than to encourage peer-to-peer interaction.

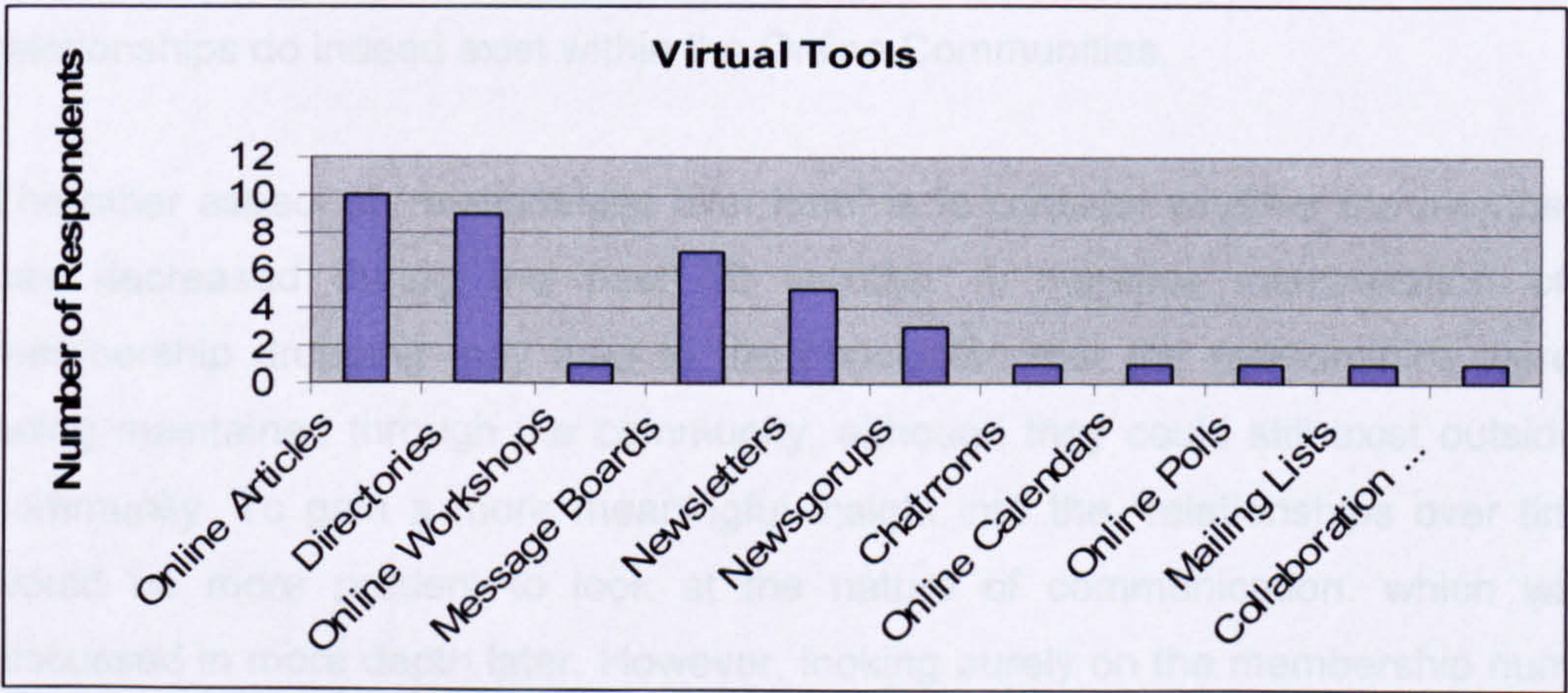


Figure 3: Virtual Tools Used



### **2.5.2 Community as Relationships Built over Time**

From the interviews there are two aspects that can be considered with regard to relationships built over time. Firstly, consideration can be given to the level of knowledge or information sharing. Interviewees were asked to describe the knowledge sharing in their Online Community. If the response indicated that the communication was one way it was regarded as a low level. This was because it was believed to be the passing of factual information from the organisation supporting the Online Community or to them. A medium level was assigned to Online Communities that had either peer-to-peer or two way communications since in these situations it was possible that the members would engage in dialogue. In such a situation those partaking in the discussion would be expressing opinions and judgements, a much higher level of communication than mere factual reporting according to Powell (1969). An Online Community that had two-way communication and peer-to-peer was classed as high in terms of knowledge sharing as it was anticipated that such sharing was an indication that the communication was not based purely on prior relationships but had a broader range. The assumption is made that this range of relationships would increase the likelihood that “technical” discussions were taking place rather than conversations about the weather.

The results showed that 9 respondents indicated that they had a high level of knowledge sharing in the form of two-way and peer-to-peer communication. However, 4 respondents indicated that knowledge sharing in their network was low conflicting with the original propositions.

It seems reasonable to suggest that this high level of communication indicates that relationships do indeed exist within the Online Communities.

The other aspect of “relationships over time” is to consider whether the membership has decreased during the past 12 months. A negative interpretation of the membership dropping may lead to the conclusion that the relationships were not being maintained through the community, although they could still exist outside the community. To gain a more meaningful insight into the “relationships over time” it would be more prudent to look at the nature of communication, which will be discussed in more depth later. However, looking purely on the membership numbers for the moment, there could be a positive angle in the sense that although the



membership had reduced it had still retained a set of core users. Indeed for some Online Communities a reduced number of members may encourage the sharing of information as trust has to be built between fewer people.

Figure 4 clearly demonstrates that the Online Communities interviewed have experienced a period of growth. A static membership was attributed to a natural turnover in an established network, and to a lack of focus in a recently formed network. The two respondents classed as “other” were part of a network that had only recently formed, and therefore did not believe that they should be represented in this data, and a respondent that was unaware of the current membership situation.

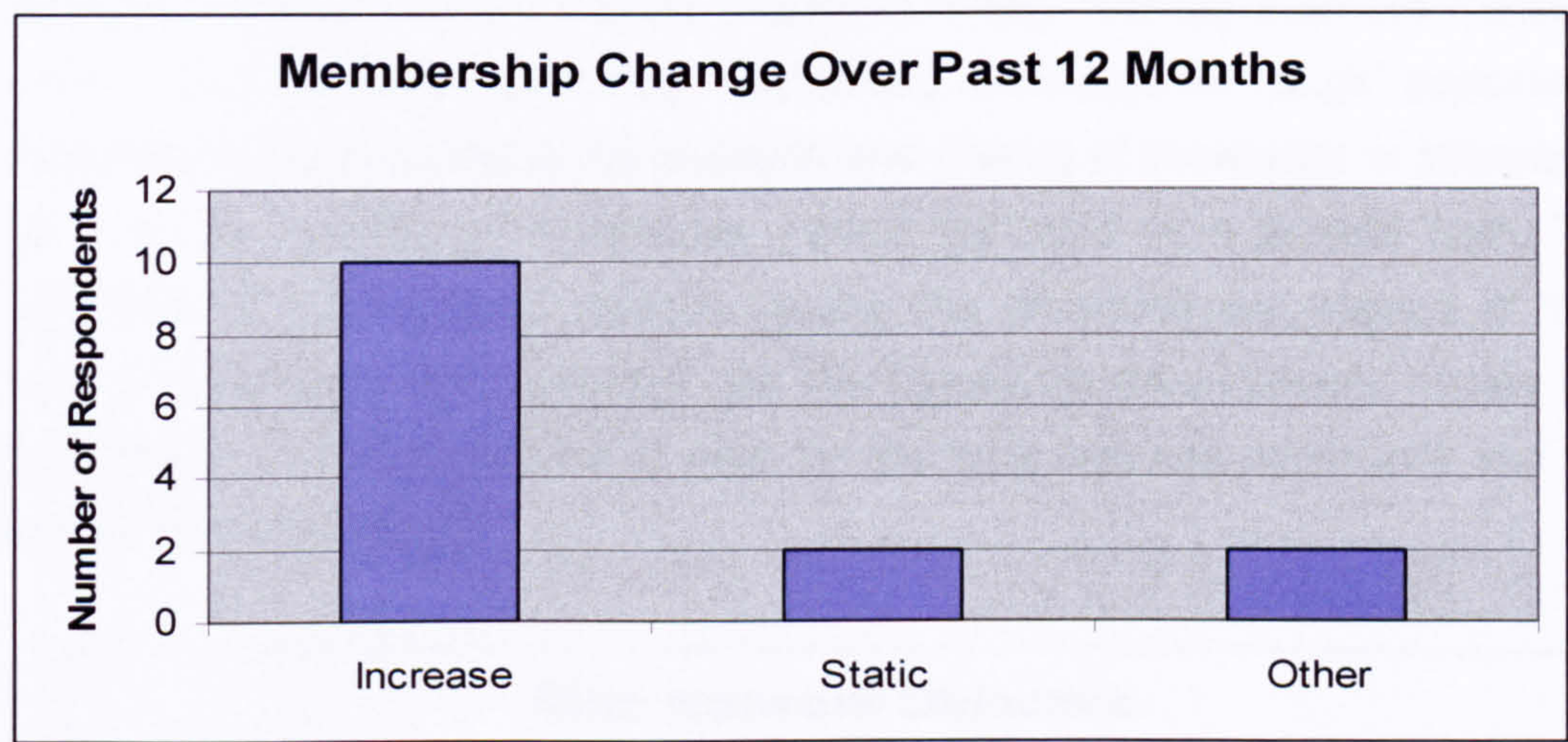


Figure 4: Membership Growth

This suggests that Online Communities do form relationships over time.

2.5.3 Community Based on Shared Identity and Sense of Belonging

One of the questions within the interviews related directly to perceived loyalty, sense of community and image enhancement or a combination of these. It was anticipated that if there was shared identify and a sense of belonging that image enhancement, sense of community and loyalty would all be present. The logic behind this thinking is that if the member truly feels a shared identity and a sense of belonging with the other community members then they will believe that it gives them, either personally or in terms of their business, greater credibility. They can gain a better image by association with these other members that they feel respect towards.



The results were partially supportive of this view as there were only 4 responses that cited all 3. However, 5 of the other responses mentioned two of the components as being applicable to their Online Community.

2.5.4 Community Based on Shared Interest or Common Need

To ascertain whether the Online Communities had a shared interest or common need, from the perspective of the Online Managers, they were questioned as to their main objective. Although the wording each provided varied, essentially their responses followed 4 main themes (Figure 5). Firstly “Making Business Contacts” which includes general networking. “Supporting knowledge exchange” captures all objectives that are related to the provision and sharing of knowledge or information i.e. it is not supplied in a particular context but more in a general form. Two organisations were strongly focused towards the promotion and support of “high tech” or technology led companies and this formed the third category. Finally one organisation existed to provide a voice for the local business community and this defines the last category.

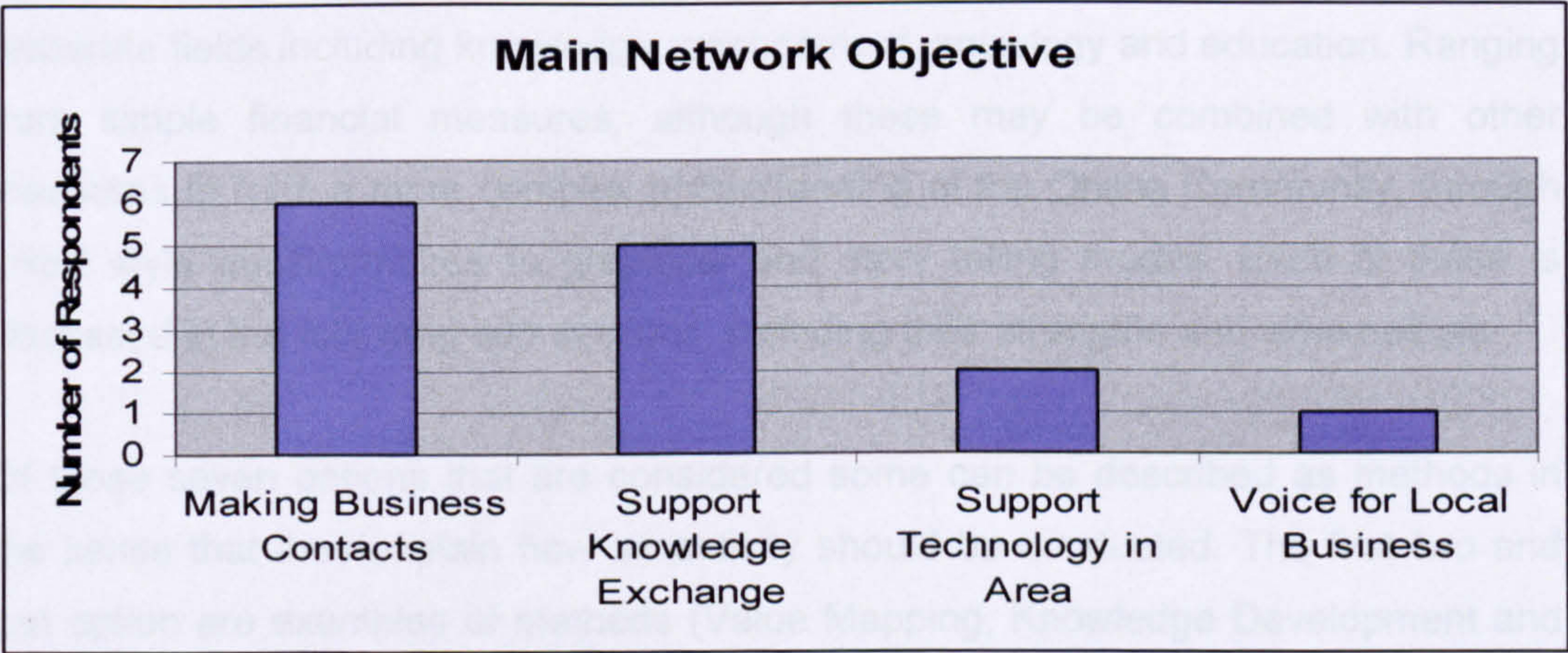


Figure 5: Main Network Objective

This suggests that the Online Communities did have a common focus within their selves although it was not the same one for all respondents. Different Online Communities had different reason for existing. However, based on this commonality between some of the Online Communities it is possible to use the type of shared



interest as a basis for a classification. This would help to simplify the description and evaluation of different Online Communities.

## **2.6 *Current Evaluation of Online Communities***

A research agenda for Virtual Community Informatics was set out in a paper published in the Journal of Information Technology Theory and Application (Lee, Vogel et al., 2003). The paper acknowledged that in recent years there had been a rise in research conducted on Virtual Communities but argued that there was still need for more, specifically in the areas of technology development and institutionalisation.

Institutionalisation was defined as the linking up of Virtual Community research with other disciplines to gain greater benefits. The research conducted in this project seeks to address this by combining knowledge about Online Communities with established work from the field of performance measurement.

In terms of past work conducted on evaluating the performance of Online Communities there are seven main areas. The options presented are gathered from disparate fields including knowledge management, sociology and education. Ranging from simple financial measures, although these may be combined with other measures to form a more complex understanding of the Online Community, through Likert style questionnaires to graphical and story telling modes. Each of these is discussed in the following sub sections, including their strengths and weaknesses.

Of these seven options that are considered some can be described as methods in the sense that they explain how an activity should be conducted. The first two and last option are examples of methods (Value Mapping, Knowledge Development and Ethnography). This is perhaps the most high-level of the evaluation options considered as it provides the opportunity to add additional metrics to suit the situation should they be identified. Two of the other options discussed in the following section focus on data collection instruments or diagnostic tools (Learning Community Evaluation and Sense of Community). These really provide detail on the manner of executing the evaluation i.e. what questionnaire is utilised. This has some scope to provide insights into how the evaluation could be accomplished. The final two subsections not yet mentioned are Financial Measures and Other Measures, which

clearly provide examples of specific measures, and are the least rich in terms of information that can be used in the development of any subsequent evaluation method. They can provide typical measure but that is all. Throughout this research it has become clear that the key issue is the identification of the appropriate measures and as such these evaluation options provide the least usefulness.

### **2.6.1 Value Mapping**

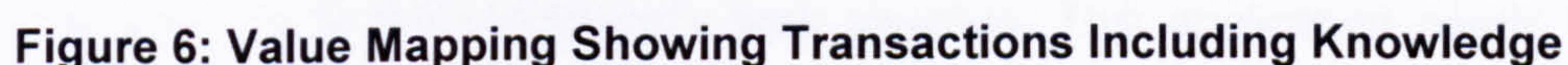
Source: (Allee, 2000)

Allee (2000) discusses the concepts surrounding a value network, which generates value from exchanges between partners in the network. She suggests that these exchanges are more than goods, services and revenues. In addition to these traditional transactions she claims that knowledge value, such as technical “know how” and intangible value, such as image enhancement, are also present in the exchange.

In order to understand the value of the exchange, she suggests mapping the flow of all exchanges, including knowledge and intangible benefits, between all members of the organisational network. Figure 6 shows a simplified map of a pharmaceutical company and focuses on traditional transactions and knowledge.

The main benefit of this method is it recognises that networks and communities provide more than mere cost saving measures. The method aims to clearly highlight the knowledge exchanged, an area of great interest if Online Communities are being deployed as a method to address knowledge management within the organisation. However, it is evident that even on this simplified map (Figure 6), without any intangible benefits transactions, there is already a level of confusion. Also it shows no indication as to the quantity or quality of these transactions. Already the map is very complex to read and interpret. To generate this map for an Online Community would be very time consuming and the resulting analysis would be complicated.

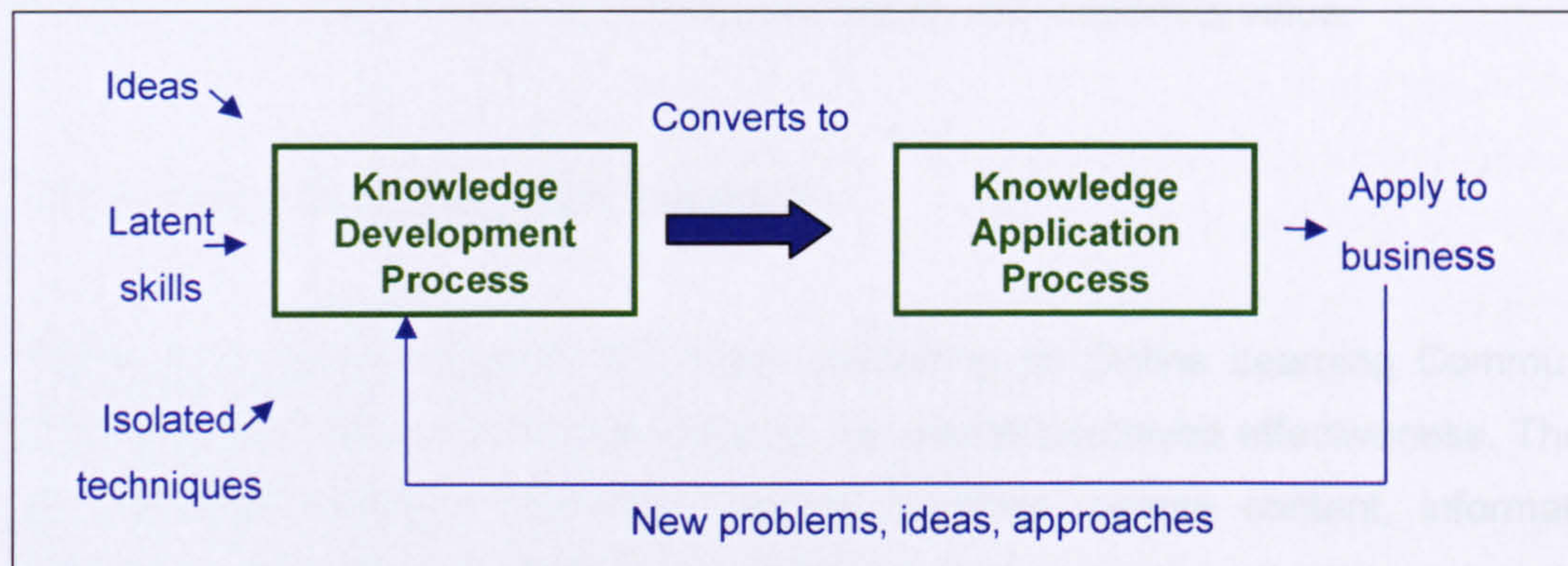




### 2.6.2 Knowledge Development and Serious Anecdotes

Millen et al (2002) suggest attributing cost savings to specific community activities, for example the time saved by access through the community to a standard template allowing faster preparation of a proposal. This is also reflected by the knowledge development system described by Wenger et al (2002). They recognise that it is difficult to measure knowledge but claim that it is possible to measure the value of the knowledge system, which is displayed in Figure 7. However, in order to do this there needs to be work conducted on documenting the causal relationships between the activities that develop knowledge and the activities in which knowledge is applied.





**Figure 7: The Knowledge System**

Source: (Wenger, McDermott et al., 2002)

A number of authors suggest that this information, on the value of Online Community development and application activities, can be collected using “serious” or “systematic” anecdotal information (Wenger and Snyder, 2000; Millen, Fontaine et al., 2002; Winkelen, 2003). This is conducted using a form of story telling, where the story relates the learning or problem solving from the community to the application of that learning or knowledge to a new situation. This application needs to have an easily quantifiable, or estimated, output. The stories are often collected through interviews with community members. One key aspect of this method is that the evidence collected must be representative of the diversity of the Online Community’s activities, not merely focused on the most compelling stories (Wenger, McDermott et al., 2002).

This method is attractive because it seeks to recognise cause and effect relationships between community activities and the actual organisational savings realised. However, there are two major concerns.

Firstly, this approach relies on employees recalling that they gained some knowledge from the community, difficult if it is not the reuse of an artefact, and then acknowledging that this was applied in another situation that either reduced costs or generated income.

The second issue is that the value of the community may be seriously under or over-estimated, as the process is dependent on the Online Community manager collating



representative material. This raises the possibility of conservative managers underreporting value and over zealous managers over-reporting value.

### **2.6.3 Learning Community Evaluation**

Peltier et al (2003) suggest that when evaluating an Online Learning Community there are 6 key dimensions that make up the overall perceived effectiveness. These are: student-to-student interaction, course structure, course content, information delivery technology, instructor-to-student interaction and instructor support & mentoring. Using a questionnaire containing 47 Likert style questions related to these aspects, they were able to analyse perceptions related to a number of online courses at a large Midwestern university in the US.

In general the principles applied here are of interest in the sense of collecting the perception of the course from the students. However, this provides a one-dimensional view. There is no scope for evaluation from the instructor perspective or from the actual university departments that provide the courses. The actual questions themselves are, as expected, orientated towards a learning community. So many of the questions based on course content and structure are not readily applicable in other Online Community situations. It would be possible to take the concept of breaking down the key dimensions, within a specific Online Community, to gain a number of statements that the participants could then rate.

### **2.6.4 Sense of Community**

It has been suggested that one of the ways to determine if an Online Community has a "sense of community" is to find out if the member believe that they actually have a community i.e. it is imagined therefore it exists. Chen et al (2002) suggest 6 statements that can be used to gauge the sense on community within an Online environment. In the same vein as Peltier et al (2003) with their learning community, the statements are designed to be used with a Likert scale in a questionnaire.

Taking the standpoint that community exists only if members feel it exists, this type of evaluation has potential for future consideration. It could be used without modification in an Online Community whose prime motive was to provide social interaction.

Another approach looking specifically at relationships is the Quality of Relationships Inventory (QRI) which Turner et al (2001) used in their study of Online Support Communities. Specifically they examined the “support” dimension, which is based on the belief that assistance can be provided across many situations, and the “depth” dimension, which links to the perceived importance of the relationship. There was some concern expressed by the authors as to whether it was permissible to use this technique with an Online Community in the form of a mailing list since it was designed to be used on one-to-one relationships. However, as members posted to the “list” rather than to a collection of members, it was deemed acceptable.

Parks and Floyd (1996) completed a study based on Internet Newsgroups to understand the development of online relationships. They contend that, as relationships develop participants become more dependent on each other, their interaction frequency increases as does the topic breadth. Through these interactions “codes” or private signals are introduced that are based on the shared history. Again if the evaluation purpose is purely to understand the level of intimacy of the relationships within the Online Community their questionnaire could be used in its current format.

All of the above techniques provide insights into the relationship aspects of the Online Community under study which is valuable. However, it is anticipated that most Online Communities that were seeking an evaluation method for their performance within a manufacturing or engineering environment would be established for other additional objectives such as knowledge sharing or gaining customer intelligence. Therefore an evaluation technique would need additional statements added to any of these questionnaires to allow some understanding of whether it achieved these other objectives.

### **2.6.5 Finance Related Measures and Approaches**

As with any organisational investment, when an Online Community is created there is a desire to justify the cost of the deployment and also the ongoing support costs. Traditional evaluation techniques such as Net Present Value and Return on Investment can be adopted (Cothrel, 2000; Millen, Fontaine et al., 2002). Generally the calculations to gather the costs involved are straightforward but more imagination



is needed to capture the value returned. Some of this information can be gathered using the storytelling approach described previously. However, in some situations value is not considered as the benefit that the community gain through its existence by the specific owners. Instead they are more focused on gaining revenue, whether in terms of extra income or recouping the cost of providing the service. In such a case it is necessary to consider the revenues that can be attributed directly to the Online Community. These consist of 4 main groups (Armstrong and Hagel III, 1996; Brunn, Jensen et al., 2002):

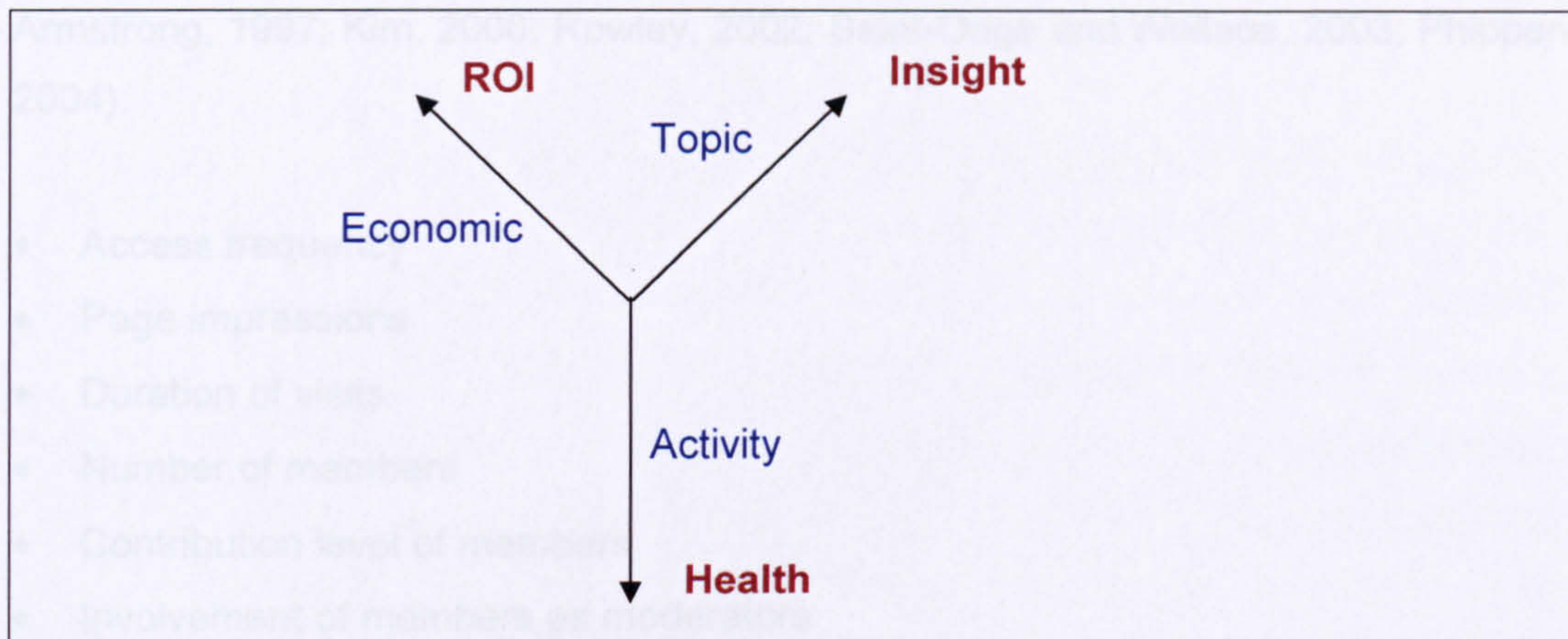
- Transaction fees – commissions paid for each purchase made, similar to credit card merchant fees
- Subscription fees or usage – paid by members to access or participate in the Online Community
- Advertising fees – income generated by providing well targeted advertising space in the Online Community
- Fees for value adding services such as access to specific content

Cothrel (2000) suggests a variation on this approach. Although he recognises the importance of traditional evaluation techniques he recommends that consideration is also given to other aspects including non financial metrics. Figure 8 shows the 3 areas he suggests – ROI, insight and health. ROI deals with financial measures such as conversion rate and incremental value – the idea that Online Community membership may generate additional sales or other benefits. Health aspects in contrast focus on measures related to activity within the Online Community, typically web metrics that can be deduced from server logs and back end databases, such as:

- Registered members
- Postings per day/week/month
- Page additions
- Repeat visits

These are used to manage the community on a day-to-day basis. The third leg proposed by Cothrel (2000) tries to understand the insights that can be gained from examining the Online Community, such as the products or processes most commonly discussed. This is generally collected by undertaking content analysis across the community.





**Figure 8: 3 Dimensions of Community Measurement**

Source: (Cothrel, 2000)

Traditional financial measures on their own will encourage decisions to be made based on short term gains rather than considering a long term strategy (Siegel, 1999). When evaluating Online Communities, it is important that recognition is given to the fact that they take time to develop or evolve. They are based on relationships, which are developed over time and as a result of interactions. The other concern is that many of the estimated returns used in these calculations are questionable in their validity, making this an area in which further research is needed (Millen, Fontaine et al., 2002).

The multi dimensional approach suggested by Cothrel (2000) provides a good understanding of what has happened within the community. However, it does not explain why this has happened or provide a link back towards the objectives that the community was set up to meet.

#### **2.6.6 Other Measures**

Some authors suggest that an Online Community can be evaluated using web metrics (Hagel III and Armstrong, 1997; Rowley, 2002). As discussed in the previous section these were used to judge the activity within an Online Community.



The following metrics were described as appropriate for a community (Hagel III and Armstrong, 1997; Kim, 2000; Rowley, 2002; Saint-Onge and Wallace, 2003; Phippen, 2004):

- Access frequency
- Page impressions
- Duration of visits
- Number of members
- Contribution level of members
- Involvement of members as moderators
- Quality and quantity of content
- Retention rate of members or churn rate
- Joining rate
- Cost of acquiring members
- Transaction commissions

Some authors build on the simple web metrics. For example Phippen (2004) takes the ideas slightly further in suggesting that advanced web analytics could be used, as it is in commercial sites. This links the data collected through the web sites back to internal databanks holding additional customer profiles. Potts (2005) not only counts messages and replies on the bulletin board under study, she also codes them if they contain social content as she uses this as an indicator that over time the percentage of messages containing social content will increase. This therefore links the simple web metric back to the relationship area mention in section 2.6.4 where sense of community was discussed.

However, without an associated evaluation framework and targets, these approaches could result in collecting data purely because it is possible, rather than collecting it to answer specific business questions. A framework which deconstructs evaluations to take account of the technical, relationship and benefits to funders aspects would be more beneficial (Ho, Schraefel et al., 2000; Preece, 2000). At the moment the framework proposed by Ho et al provides details only on the usability aspects.



### **2.6.7 Ethnography**

One point that needs to be considered is the growing area of using ethnography within Online Communities known as netnography or cyber-ethnography. This is becoming increasingly popular in the field of marketing (Kozinets, 2002; Maclaran and Catterall, 2002). Essentially it requires that a participant observer immerses themselves into the Online Community under study, in order to explore and describe the social nature of the phenomena (Preece, 2000). Kozinets (2002) provides details on the practical considerations of conducting cyber-ethnography and states that any conclusions from the study should not be generalised outside the sample.

The studies do provide a rich insight into the Online Community and can be conducted in many different settings not only for the purpose of marketing research but for other reasons too. For example Fox and Roberts (1999) use this technique in a medical setting and Carter (2005) within Cybercity, a social meeting place. Although they can give a colourful description of life within the community, they take a long period of time to build up a picture. This conflicts with a basic requirement of this evaluation which is to provide snapshots of the performance of the Online Community with regard to its objectives.

Another major barrier to using this method is the need to find someone that has the necessary skills to conduct an ethnographic study. Using someone that had little training or experience could generate misleading results and prevent further studies taking place.

## ***2.7 The Need for an Improved Evaluation Method***

From reviewing the literature and the interviews conducted with a number of Online Community managers and owners, two important discoveries were made.

Firstly it was apparent that Online Communities often have low resources. Secondly, each Online Community requires a way to address their peculiarities despite their many shared attributes with other Online Communities. This reflects the claim by Gongla and Rizzuto (2001) that each community has different strengths and characteristics. For this reason it is suggested that each Online Community may

desire to conduct an evaluation based on different key aspects of what they seek to achieve. For example, in some cases creating a safe, shared place for members to interact may capture the main objective of the Online Community whereas in others it is a need to solve specific business issues. Each of these scenarios require different measures to be used and this is one of the limitations of the evaluation methods described previously. These provide measures but offer no opportunity to add in others that may be required. Hence they provide great insight into what is available but fail to provide a platform where the Online Community Manager can devise appropriate additional measures.

With this in mind, and taking cognisance of the comments from Wenger et al (2002) that evaluation can be used to direct development, it was clear that there was an opportunity to develop a new evaluation method. However, this method must adhere to a number of requirements:

- It must be simple to implement with minimum use of already limited resources
- It must be flexible to allow customisation to suit the needs of the Online Community that is under study
- It should allow action to be taken to improve the day-to-day management of the Online Community
- The measures collected must help answer business questions

## **2.8 Summary**

The purpose of this chapter was to introduce the concept of Online Communities and to discuss their relevance to manufacturing. Also of concern was the need to understand the current options for evaluating the performance of Online Communities.

Therefore a definition of an Online Community has been created:

**“An Online, or Virtual, Community is a social or business space, supported by technology and Internet tools, in which people with common interests, objectives or values can meet and satisfy their needs.”**



Three examples of Online Communities that relate to manufacturing were briefly presented focusing on Caterpillar, Ford Motor Company and Shell International Exploration and Production.

Based on interviews with 10 Online Community it was discovered that:

- Online Community does not need to exist within a shared physical location but can instead retain a virtual shared location
- Online Community consists of relationships built over time through interactions
- Not all Online Communities believe that loyalty, sense of community and image enhancement are necessary for their existence
- Online Communities do have a common focus within themselves

A number of current options for evaluating Online Communities were discussed:

- Value Mapping
- Serious Anecdote
- Learning Community Evaluation
- Measure of the Sense of Community
- Traditional Financial Measures
- Web Metrics
- Cyber-ethnography

Based on the advantages and disadvantages of these evaluation options the need for a new method that was simple, yet robust, and had the capacity to answer business questions was identified. This lead to a set of requirements being developed for the new evaluation method.

### 3 Classification of Online Communities

#### 3.1 Introduction

After gaining an understanding of Online Communities and their relevance to manufacturing from the previous chapter, attention can now be focused on developing an evaluation process in response to the research objective. For this reason this chapter will:

- Discuss why a classification is needed within the evaluation process
- Present a number of existing Online Community classifications and highlight why they are not suitable for use without modification
- Propose a classification of Online Communities that will support the evaluation of their performance
- Detail two specific Online Community classes that will be used in the pilot study of the evaluation method

#### 3.2 The Need for a Classification

Classifications essentially organise a diverse set of facts into a manageable format, allowing the derivation of propositions and theories (Ulrich and McKelvey, 1990). Employing a classification is a systematic way of organising items into broad “buckets” based on similar characteristics (Bryar, 2001; Montague-Institute, 2003). These authors also claim that by applying a classification it is possible to define homogeneous populations known as classes, thus allowing increased explanations of the variance under study. In this Executive Summary the definition provided by Bailey (1994) will be adopted:

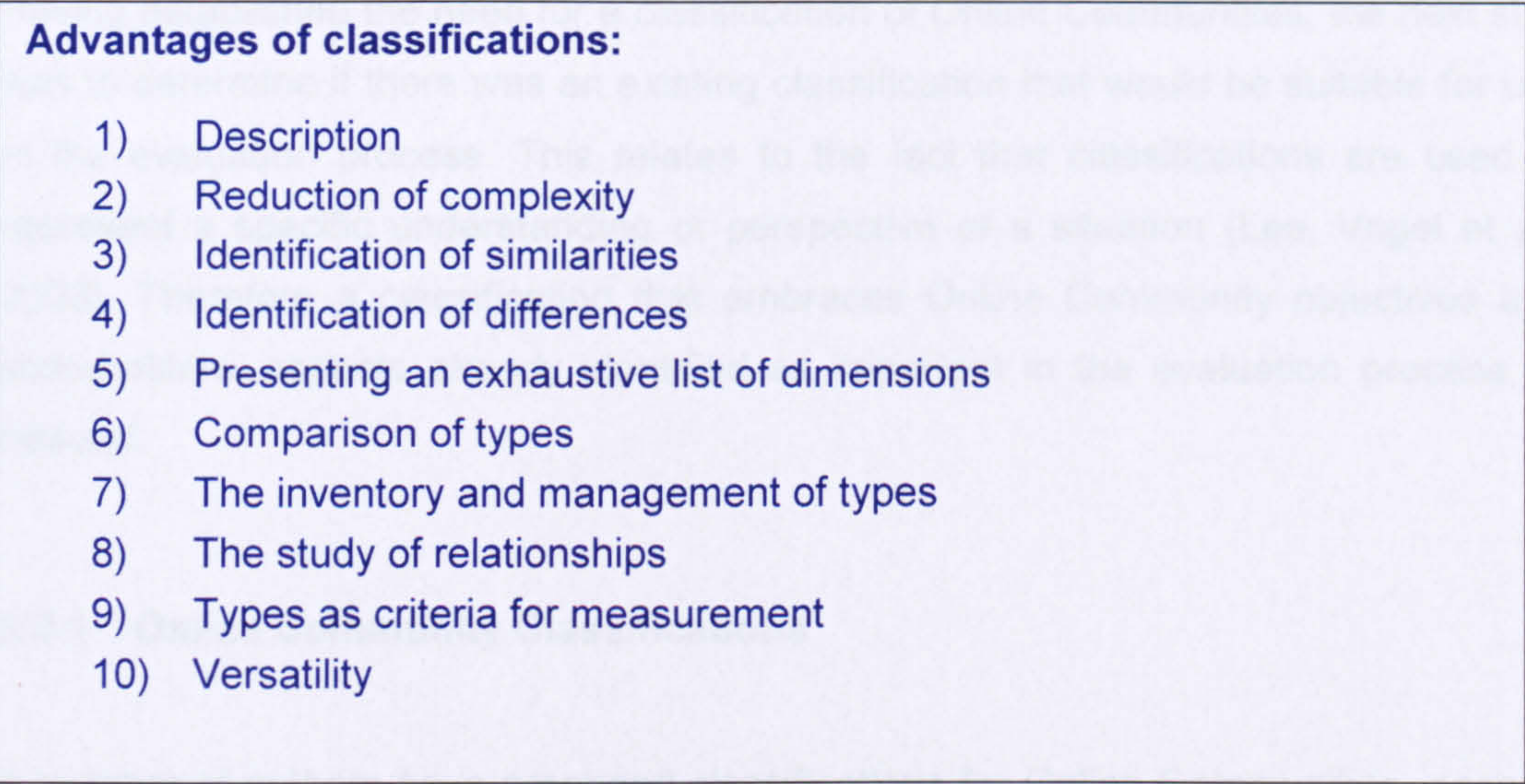
**“In its simplest form, classification is merely defined as the ordering of entities into groups or classes on the basis of their similarity”**

**(Bailey, 1994)**

A number of authors have suggested that in order to conduct any form of scientific enquiry, it is first necessary, and indeed considered a fundamental step, to classify



the phenomena under study (Carper and Snizek, 1980; McKelvey, 1982; Sanchez, 1993). This allows boundaries and limiting conditions of the hypotheses and the research to be stated (Sanchez, 1993). Bailey (1994) proposes that there are 10 advantages associated with using classifications, Figure 9. Items 1, 2, 3 and 9 are the ones that have prompted the use of a classification in the evaluation process.



**Figure 9: Advantages of Using Classifications**

Source: (Bailey, 1994)

The classification of Online Communities to be proposed in section 3.4 was generated to reduce the complexity of the problem under study. It allows Online Communities to be considered in terms of their objectives and stakeholders, a key aspect when considering evaluation.

The classification also helps to describe some of the main attributes that can be observed in relation to Online Communities.

Finally, and perhaps most importantly, the classification allows the relevant findings from the literature to be more easily communicated to others. This is achieved by distilling the main information into classes which are based on different Online Community elements. This makes it easier for others involved in the evaluation process to quickly comprehend Online Communities and the evaluation options available to them. It reduces the complexity of the evaluation process, by recognising that not all Online Communities are the same, but by highlighting the similarities



between certain entities. This aspect of ease of comprehension and processing is cited in Carper and Snizek (1980).

**3.3 Existing Classifications and their Issues**

Having established the need for a classification of Online Communities, the next step was to determine if there was an existing classification that would be suitable for use in the evaluation process. This relates to the fact that classifications are used to represent a specific understanding or perspective of a situation (Lee, Vogel et al., 2003). Therefore a classification that embraces Online Community objectives and stakeholders, aspects already identified as important in the evaluation process, is needed.

**3.3.1 Online Community Classifications**

A number of authors have proposed classifications for Online Communities, each to serve a different purpose, and therefore each based on a different characteristic. The main options for classification are shown in Table 3.

Of these different classifications there are two sets that are potentially of interest in this research. Firstly the classifications focusing on the people or organisations concerned, as this relates to the stakeholders involved in the Online Community. Secondly classifications where the needs satisfied form the basis of the different classes, as this is fundamental to the evaluation of the Online Community. Therefore these classifications will be discussed in more detail.

In terms of work conducted on classifying Online Communities, the one proposed by Hagel and Armstong (1996; 1997) is perhaps the most often cited. They suggest that there are 4 community classes as shown in the first row of Table 3, and these are based on the motivation of the members for joining.



Basis of Classification	Authors	Examples of Class
The need that the community meets, allowing the study of the attraction and engagement of members	(Armstrong and Hagel III, 1996; Hagel III and Armstrong, 1997; Carver, 1999; Kim, 2000; Schubert and Ginsburg, 2000; Cashel, 2001; Baxter, 2002; Rowley, 2002; Ciffolilli, 2003; Cox, Patrick et al., 2003)	1) Communities of Transaction, Communities of Interest, Communities of Fantasy & Communities of Relationships
The actors involved, and whether they are all within a single organisation, geographical area or demographical segment focusing on the collection and use of strategic and marketing information	(Kodama, 1999; Cothrel, 2000)	1) Business to Business, Business to Consumer & Employer to Employee
The ownership of the community, and its impact on the development and member engagement (often in the context of e-marketplaces)	(Berryman, Harrington et al., 1998; Kalakota, Ticoll et al., 1998; Kannan, Chang et al., 2001)	1) Seller Controlled, Buyer Controlled & Neutral 2) Open Market, Alliance, Aggregation, Value Chain
The level of communication and the social structure allowing personal networks and interactions to be studied	(Walther, 1996; Jones and Rafaeli, 2000)	1) Impersonal, Interpersonal & Hyperpersonal 2) Virtual-Settlements, Virtual Airport Bars & cyber-Inns
The technology employed to facilitate the development of the Online Community, which supports research from a technological view	(Kozinets, 2002)	1) Boards, Web Rings/Pages, Lists, Dungeons & Chat Rooms
Other form of commonality within the Online Community, allowing a high level overview when initiating research	(Siegel, 1999; Kim, 2000)	1) Demographics & Psychographics 2) Geographic, Demographic, Topical & Activity Based

Table 3: Online Community Classifications



A number of authors have conducted further research using this as the basis. For example, Schubert and Ginsburg (2000) suggest that there are various levels within the classification. At the highest level, consideration focuses on whether the community is defined by the purpose (the need it serves) or the medium (the communication channel). The next decision point relates to whether the nature of the motivation is academic, leisure or business. At the bottom level the nodes representing the classes coincide with the Online Community classes proposed by Hagel and Armstrong (1997).

Considering the classification based on the people involved, it is clear that a number of the typical ones are already contained within the classification e.g. employees, consumers, customers and partners. However, there are some that are not mentioned such as investors, which seem to feature more prominently in terms of control classifications, and regulators who are not present at all. However, although the stakeholders are of importance it is thought that this is a secondary consideration that should be introduced after the primary characteristic of the need served.

It is also worth mentioning Bauman's (2001) division of offline communities into two main classes. The first is aesthetic communities (or peg communities) which are a temporary place to meet other individuals who have the same current needs. The name "peg" is based on the idea that they provide a focus or peg on which to hang current worries or preoccupations. In contrast he also presents ethical communities which are based on long term commitments and relationships – much less transient in nature.

It is not possible to use any of the classifications without modification. This is because they do not completely cover the "needs" or "activities" that are of interest as gleaned from discussions with practitioners (McArdle, 2004). Without this coverage it is impossible to truly evaluate whether the Online Community is satisfying the objective that it was created to meet. Therefore the appropriate action is to create a classification, reusing proven ideas from above where possible, that embraces the needs of the practitioners.



3.4 Proposed Classification of Online Communities

Any new classification must allow a specific understanding of the situation (Lee, Vogel et al., 2003). Therefore in the context of evaluation the focus of interest is the main objective of the Online Community. This “need” is the characteristic around which the classification was developed.

Through examining the literature 7 main types of Online Community were identified (McArdle, 2003). These types and their main purpose are shown in Table 4, columns 1 and 2. Using these as the basis for the classification it is possible to deduce 3 main classes of Online Community, as shown in column 3 of Table 4.

Online Community Type (Literature)	Main Purpose	Proposed Online Community Class
Campaigning Community	Exchange information and/or discuss action	Community of Interest
Community of Interest	Exchange information and/or provide support	Community of Interest
Community of Practice	Exchange information and ideas on how to apply it	Community of Practice
Company Sponsored Community	Exchange information and/or enable transactions	Community of Interest or Community of Transaction
Learning Network	Exchange information and discuss ideas on how to apply it	Community of Practice
Professional Network	Exchange information and discuss ideas on how to apply it	Community of Practice
Social Community	Enable people to chat, socialise informally and/or provide support	Community of Interest

Table 4: Types of Online Community from the Literature

Campaigning communities and social communities are classed as Communities of Interest as they share a common bond. For example in a campaigning community the commonality would be through the theme of the campaign. A social community is



linked through common geographical areas, life styles or events. These are refinements of the Online Community of Interest class where there is a shared interest that causes people to join and interact.

The Communities of Practice class is based on the members' desire to develop their field of interest. Not only is there interaction about the shared interest, there is some aspiration to learn more about or improve the field e.g. through sharing best practice and problem solving. It is not enough simply to share information there is also a requirement to apply this information to their own problem or situation thus creating knowledge. A professional network is classed as a Community of Practice as it performs this role across multiple organisations whereas in the literature the term Community of Practice is generally reserved for a community within a single organisation.

The final class identified is Communities of Transaction. These may be developed in addition to a Community of Interest. For example, consider a web site reviewing mobile phones and accessories where users share experiences and ratings of products. This would be a Community of Interest. However, if there was also a facility to purchase the phones or accessories this would also be a Community of Transaction. The main purpose of a Community of Transaction is to allow trading to take place.

In conducting work for the project sponsor, AIM, the possible existence of a fourth class of community was identified. (More details on this specific community are provided in section 6.2.) The basis of this fourth Online Community class was to encourage discovery and the class was therefore named as a Community of Exploration. This community takes the desire to develop the field of interest, as present in a Community of Practice, and then extends beyond this, creating new knowledge that links multiple research areas. This class of community has been briefly mentioned at a Virtual Communities Conference (Snowden, 2003).

#### **3.4.1 4 Classes of Community**

Based on the analysis of information from the literature and the investigation of existing communities 4 main Online Community classes have been identified for use in an evaluation method:



- **Community of Transaction -** allows some form of trading to take place usually utilising Internet technology to realise the greatest efficiencies. Kannan et al (2001) state that transaction orientated communities facilitate buying and selling of products, including aspects such as information delivery that supports the transactions. Often these communities have large numbers of members but little relationship depth as the members drop in and out according to their needs. Consider Online Communities such as e-bay (>40 million members) and Amazon (>25 million members) where reviews are posted/read and transactions conducted.
- **Community of Interest -** exists primarily to allow people with a shared interest to meet and to discuss their interest. This shared interest can be in the form of a hobby, a product or even an event. Another use of Communities of Interest is to provide support that can be emotional as in a healthcare situation (Josefsson, 2005) or technical as in a PC helpdesk role. A typical example of a Community of Interest is Motley Fool, a community set up to meet the needs of individual investors. An example of this class of community can be viewed in Chapter 2 - the Cisco community exists to provide technical and product support to their customers.
- **Community of Practice -** develops the field of interest and shares best practice. Like a Community of Interest individuals meet to share information. However, they also share knowledge enabling the promotion of better methods and practices. In addition due to the desire to develop the subject, the relationships



formed are deeper and the interactions more frequent than a Community of Interest.

- **Community of Exploration** - explores and develops new areas of knowledge through encouraging discovery. It is anticipated that for the high levels of trust to be developed, that are necessary in this environment, the membership of this class of community will be low.

Although the classification provides 4 unique classes in practice the lines between these are somewhat blurred as these are not mutually exclusive. If a situation arises where the Online Community exhibits the characteristics of two classes then it should be placed within both of these classes. For example, an Online Community where people are swapping comments about their favourite camera and getting tips for creating better images may also contain a section where people can buy or sell photographic equipment. The discussions and comments on taking pictures suggest a Community of Interest, whereas the facility to buy and sell would imply a Community of Transaction. This community would therefore reside in both of these classes.

The communities worked with during the testing phase of this research fall within the classes of Community of Practice and Community of Exploration so further details about these classes are presented below. Submission 5 provides details of the other classes (McArdle, 2003).

### **3.4.2 Community of Practice**

As mentioned before, Communities of Practice primarily exist to develop the field of interest and share best practice. They can help organisations increase the capabilities of the individuals that they employ which in turn expands the capabilities of the organisation (Saint-Onge and Wallace, 2003; Stuedemann, 2004). Typical benefits that are derived from this class of community include assistance in problem solving, validation of knowledge and documenting best practice.



Examples of Communities of Practice can be found in the literature (Carver, 1999; Carr and Chambers, 2006), although some of these are not Online Communities, and case studies have been reported from Shell and Chrysler (Wenger, McDermott et al., 2002). In Chapter 2 there were two specific examples of Online Communities of Practice, used at Rolls Royce and Caterpillar, where the benefits focused on problem solving tools and storage and retrieval of documented information and knowledge. The communities within Ford are Communities of Practice as they are using them to duplicate best practice across locations as well as to provide a basic learning platform. Different naming conventions are applied to Communities of Practice – family groups, thematic groups and learning communities – but the intent of these groups remains broadly the same (Gongla and Rizzuto, 2001; Winkelen, 2003).

Wenger and Snyder (2000) suggest that there are 6 ways in which Communities of Practice add value to an organisation:

- They help drive strategy
- They start new lines of business
- They solve problems quickly
- They transfer best practices
- They develop professional skills
- They help companies recruit and retain talent

Although all of these activities involve a certain amount of learning in terms of community members, it is perhaps clearer to focus on the aspects that encourage learning within the field of interest for that specific community. A Community of Practice about Non Destructive Testing (NDT) of Subsea Tubular Equipment could easily provide an area to help engineers new to the company understand the current NDT options available and why such ones are used on specific products. It would also highlight the safety and handling aspects of the product so that the engineers would be in a strong position to write procedures covering this part of the product manufacture. This example shows how best practice could be learned and professional skills could be developed through engaging in the Community of Practice. This can also be thought of as an example of “Near Transfer” where information is being shared between a source team and a receiving team on similar work that is being carried out in a different location. The Ford Best Practice



Replication Database is cited by Dixon (2000) as a specific example of this type of knowledge transfer or learning.

Also important about the learning aspect of Communities of Practice is that not all members have the same level of participation (Wenger, McDermott et al., 2002). Some members will be heavily committed and will form a core group which actively participates in the discussions and develops the objects that the group needs to share knowledge. Others will contribute more sporadically whereas the largest proportion of the group will remain on the periphery. Outside of the core group is where much of the learning can take place as people gain insights from reading the discussions that they can then adapt for their own circumstances.

One aspect of Online Community that has not been discussed in this document yet is the idea of community evolution or maturity. It has been proposed that a Community evolves through 5 main stages (Gongla and Rizzuto, 2001):

- Potential – the community is forming
- Building – the community is defining itself and how it operates
- Engaged – the community is functioning and improving processes under its influence
- Active – the community can provide evidence of the benefit of its collaborative work
- Adaptive – the community is innovating to provide competitive advantage

From the work of Gongla and Rizzuto (2001) it is clear that the path for many communities is not necessarily linear, with some dropping back into an earlier stage. Also they state that some communities may remain at one stage and never advance to more mature levels. Again learning takes place across all maturity levels but the most typical ones where the new community members can learn about the existing practices within their field are towards the end of the Building level but more so in the Engaged or Active states of maturity. In these cases the community members are promoting and participating in sharing knowledge.

One critical point that was cited is that communities do not have to reach the later stages of maturity to contribute value to the business (Gongla and Rizzuto, 2001).



Cognisance should be taken of this when developing the evaluation method in Chapter 5.

eLearning has been the subject of many papers throughout the last two decades. One reason for this is that it is now recognised that traditional learning methods and delivery mediums cannot support life-long learning (Adam, Awerbuch et al., 1997; Carver, 1999; Boyle, 2002). For people to remain effective in their jobs they must periodically update their skill set. To meet this need for a “just in time”, geographically dispersed delivery format eLearning has provided a new structure. The view being that material is delivered to the student through some form of electronic medium. However, this is not the same as an eLearning Community which must involve interaction as well as the delivery of the material. Fundamental to this is the idea that humans learn from sharing and discussing ideas rather than through passive inhalation of information (Brown, Collins et al., 1989; Carver, 1999; Palloff and Pratt, 1999; Davenport, 2001; Boyle, 2002; Bruckman and Jensen, 2002). This allows them to make the abstract concepts more relevant to their own situations and thus internalise them. In this medium some students that may not interact within a classroom do respond as they benefit from having time to reflect on the comments or questions rather than having to provide an immediate response. This makes it more suitable for utilisation with different learning styles (Palloff and Pratt, 1999; OECD, 2001). Also it has been suggested that members learn more deeply from teaching others (Hunter, 2002) and that students find it more motivating to collaborate (Murphree, 1999).

Hardaker and Smith (2002) provide an insight into the different tools that are available to provide both individual and collective learning thus providing a link between eLearning and eLearning Communities. This two pronged approach is mirrored in the work conducted by Carr and Chambers (2006) where they split their Teaching Community of Practice into two distinct areas:

- the information section which is a repository of articles and tools
- the community section which encourages the exchange of ideas and support

In Chapter 6, when the practical application of the testing method is discussed with regard to TWI (The Welding Institute), then reference will be made back to the above concepts.



### **3.4.3 Community of Exploration**

As previously discussed, there is evidence in the form of a presentation at a Virtual Communities conference (Snowden, 2003), and an aspiration from the project sponsors, to suggest that there is a potential set of Online Communities not covered by the previous 3 classes. For this reason another class was created – Community of Exploration.

The main purpose of this class of Online Community is to explore and develop new areas of knowledge through encouraging discovery. This discovery can take the form of new products, new markets or new business models. It is similar to the Community of Practice that has reached the adaptive level of maturity within the evolution model presented by Gongla and Rizzuto (2001). However, this new class recognises that innovation may actually lie across the boundaries of two domains rather than lie within a single one. Communities of Practice tend to exist within a single domain therefore it is likely that new Community space must be created rather than expecting that an existing one will reach the required level of maturity. Sawhney and Prandelli (2002) also discuss the need for communities that focus specifically on innovation.

It is anticipated that for the high levels of trust to be developed, that are necessary in this environment, the membership of this class of community will be small. Perhaps as low as 10 participants.

The prime benefit of this class of community is that it allows individuals, typically in a research role, to mix with likeminded “explorers” in a safe environment. They can discuss concepts and ideas, no matter how extreme, without fear of damage to their professional reputations. This exchange should result in the identification of new research areas and plans to explore them.

### **3.4.4 Community Class and Membership Size**

Through the descriptions of the classes it is apparent that there is a trend in terms of membership numbers and relationship depth. Indeed some authors have commented that as communities grow larger, trust between members is eroded as the interaction frequency drops and the relationship depth cannot be maintained (Hagel III and Armstrong, 1997). Therefore in transaction based communities, members rely on



legislation whereas in interest based communities they rely more on mutual respect. It is expected that membership numbers will drop as the focus of a community narrows and the relationships and interest are deepened.

This summary above provides the foundation of the supporting material discussed in section 5.3.2.

### **3.5 Summary**

This chapter has stated what is meant by a classification in the context of this work and explained that a classification is used to:

- Reduce the complexity of a problem
- Describe the main attributes of an entity within a class
- Condense large amounts of information making it more manageable
- Support the evaluation process by reducing the time taken to construct the evaluation

It has also discussed some of the main classifications and their basis:

- Needs satisfied by the Online Community
- Actors involved in the Online Community
- Ownership of the Online Community
- Level of communications within the Online Community
- Technology deployed to enable the Online Community

Through this review it has been shown that the current classifications will not be suitable as they do not cover all aspects that were raised during the Online Community interviews. However, for robustness currently recognised individual classes will be reused wherever possible such as “Community of Transaction”. A classification of Online Communities has been proposed that will support the evaluation of their performance based on the interviews and project work conducted:

- Community of Transaction
- Community of Interest



- Community of Practice
- Community of Exploration

Extra insight was provided on the Community of Practice and Community of Exploration as these two classes form the basis of the testing of the evaluation method discussed in Chapter 6.



## **4 Performance Measurement**

### **4.1 Introduction**

In Chapter 2 it was established that currently there is no appropriate method for evaluating Online Communities which recognises their complexities and at the same time offers meaningful answers to business questions. This chapter will begin to address the current business need for an evaluation method for Online Communities by:

- Clarifying the terminology used in relation to performance measurement in this Executive Summary so that a common understanding of the work is gained
- Examining 3 performance measurement approaches with a view to applying them in part to the context of an Online Community

Focus will be on 3 specific frameworks/methods that have been selected as potentially valuable in establishing a new method for evaluating Online Communities:

- The Performance Prism
- Performance Measurement Questionnaire
- Extended Web Assessment Method

However, before these are examined in detail, attention will be given to clarifying some of the terminology used within this chapter.

#### **4.1.1 Performance Measurement or Management**

It can be suggested that in all organisations there is a need for performance measurement and some form of evaluation, but what is meant by this term? Neely, Adams et al (2002) define “performance measurement as the process of quantifying the efficiency and effectiveness of past actions”. They consider it to be part of a system which enables informed decisions to be made and actions taken as a result



of the quantification of the performance measures. This is known as a performance measurement system.

There is another related term that occurs in the literature – performance management. Kermally (1997) suggests that this is the activity that helps all parts of the organisation operate together to achieve movement in the desired direction. Essentially, performance management may act as an umbrella, encompassing multiple performance measurement systems. In this research, the focus was concentrated on one aspect of the business, although the Online Communities themselves may be populated by members from different functions. Therefore the core of this research was based on performance measurement systems. This provides the ability to look at multiple business issues from a single perspective.

#### **4.1.2 Frameworks, Techniques and Methods**

A framework can be regarded as a supporting structure or basic system (The Little Oxford Dictionary, 6<sup>th</sup> Ed). Specifically a measurement framework has been defined by Kennerly and Neely (2002) as a way to assist organisations to define a set of measures that reflect their objectives and assesses their performance appropriately. The Performance Prism is typical of a framework in that by using it, it helps to provide a balanced overview of the organisation under study, using integrated multi dimensional measures (Kennerly and Neely, 2002). In contrast the Performance Measurement Questionnaire is described as a “diagnostic tool”, although it is arguable that it should be classed as a technique for achieving change in an organisation, specifically within the domain of performance measurement. In this sense, it is the manner of executing the change, through skill and method (The Little Oxford Dictionary, 6<sup>th</sup> Ed). Finally, Schubert (2002) introduces a “method” that evaluates e-commerce web sites. In her work, a method can be considered to be the way in which an activity is conducted or a way of doing things (The Little Oxford Dictionary, 6<sup>th</sup> Ed). To return to a more research orientated phrasing Hussey and Hussey (1997) suggest that a method is the means by which data is collected and analysed.

For this reason the solution to evaluating Online Communities that is proposed in this document will be regarded as a method. This is because it assists in collecting data



relating to the stakeholders, their opinions and the processes involved before ultimately analysing this to generate actions.

## **4.2 Performance Prism**

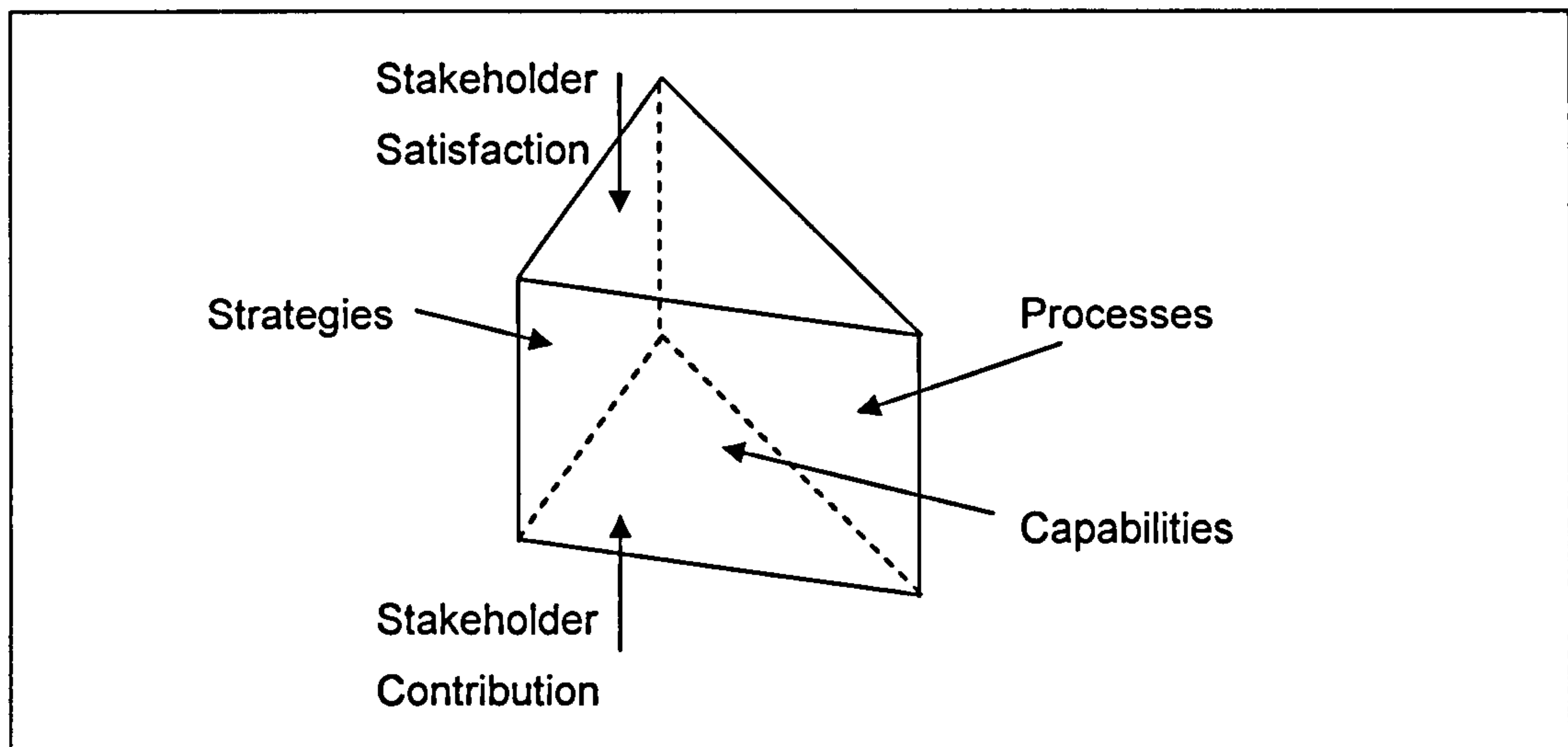
The Performance Prism was created to address the need for a multifaceted, adaptable performance measurement framework (Kennerly and Neely, 2002). Instead of focusing on single aspects such as shareholder value or financial results, the Prism provides a framework to develop a comprehensive set of measures that address 5 key areas or facets (Figure 10), which affect an organisation's competitiveness (Neely and Adams, 2001).

This model is based on 3 fundamental premises. Firstly it must be accepted that an organisation must consider a variety of stakeholders in order to thrive. Secondly, the strategies, processes and capabilities of the organisation must be aligned and integrated in order to deliver the value to the stakeholders. Finally the relationship between the stakeholders and the organisation is two-way.

The stakeholders need and expect satisfaction from the organisation, however, in return the organisation has needs that it requires the stakeholders to meet. Consider a typical customer, they want quality product delivered on time at a reasonable price. They do not concern themselves with loyalty to the organisation or the organisation's profitability. These are what the organisation wants from the customer i.e. their contribution. Contribution and satisfaction needs will be discussed later in this section.

These 5 facets help in achieving the fourfold role of measurement as described by Neely et al (2001; 2002). Performance measures help managers to communicate their strategies within the organisation and also to track whether the strategies they have chosen are actually being implemented. Measures can also provide encouragement and incentive changing behaviour that leads to strategy implementation. Finally, the data collected allows analysis to be conducted as to whether the strategies are working as planned (Neely and Adams, 2001; Neely, Adams et al., 2002).





**Figure 10: The 5 Facets**

Source: (Neely and Adams, 2001; Neely, Adams et al., 2002)

In applying the Performance Prism 5 key questions, related to the 5 facets are addressed (Neely and Adams, 2001; Kennerly and Neely, 2002; Neely, Adams et al., 2002; Neely, Marr et al., 2002):

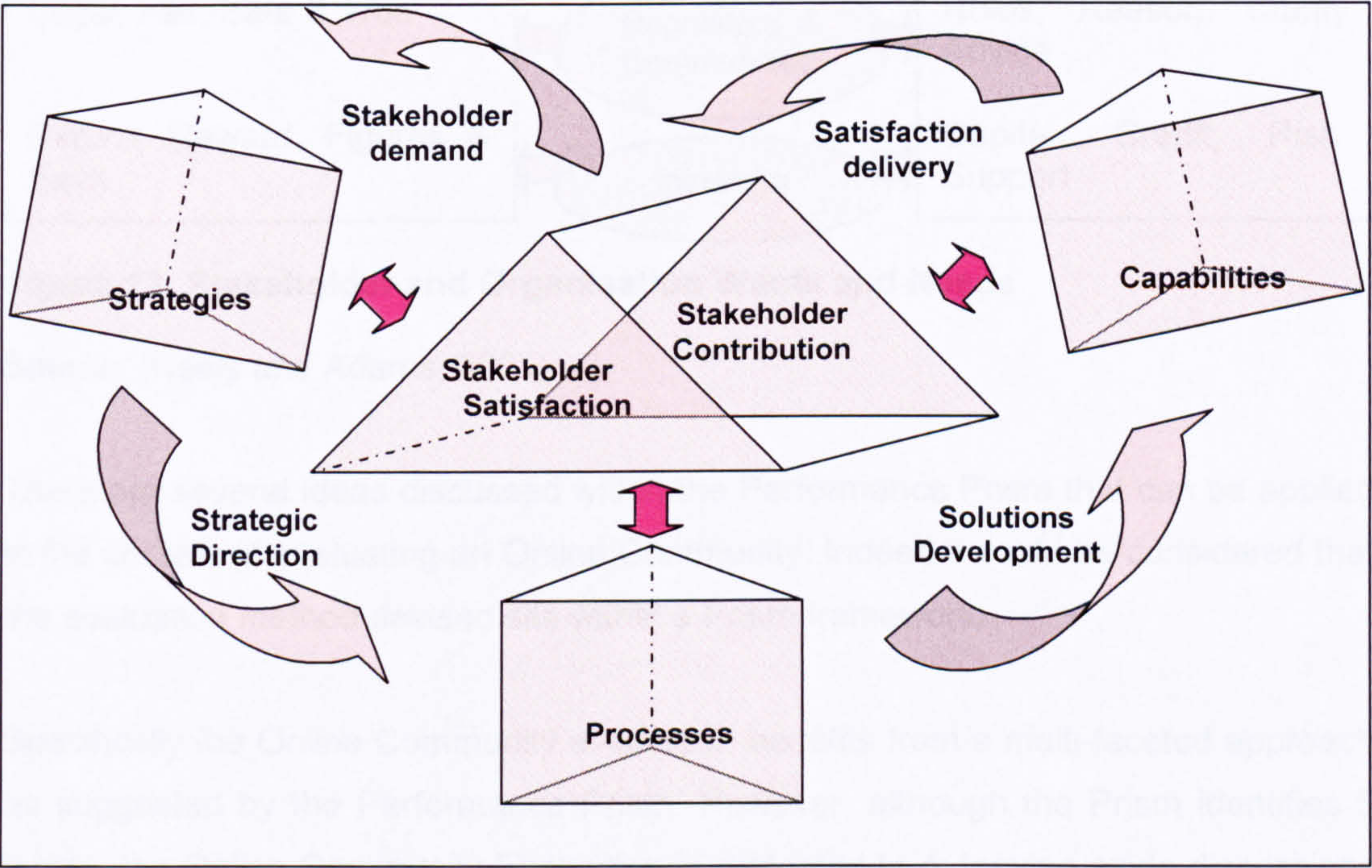
1. Stakeholder satisfaction - who are our key stakeholders and what do they want and need?
2. Strategies - what strategies do we need to put in place to satisfy the wants and needs of the key stakeholders?
3. Processes - what critical processes need to be put in place to allow the strategies to be executed?
4. Capabilities - what capabilities do we need to operate and enhance these processes?
5. Stakeholder contribution - what contributions do we require from our stakeholders if we are to maintain and develop these capabilities?

It is important that these questions are addressed in this order as the point is made that performance measures should be driven by the stakeholders and not the strategy. Strategy is described as a route that is taken in order to achieve stakeholder satisfaction, therefore their needs require identification before an appropriate strategy can be selected (Neely and Adams, 2001; Neely, Adams et al., 2002).



Much of the discussion has revolved around the stakeholders, but in the context of the Performance Prism, this group contains more than the typical shareholders and customers than many other approaches. In today’s environment, consideration must also be given to employees who possess the capabilities that are required to deliver value to shareholders. Also, if moves towards more integrated supply chains are considered, there are partners and suppliers, engaged in joint projects, whose support is needed.

There are two less obvious stakeholders introduced by Neely et al (2001; 2002) consisting of regulators who deal with legal aspects and communities or pressure groups that focus on specific issues. These last two stakeholders can have a significant impact of the competitiveness of an organisation e.g. fines for anti-competitiveness or negative publicity generated by campaigns against organisations that are environmentally unfriendly.



**Figure 11: Delivering Stakeholder Value**

Source: (Neely and Adams, 2001; Kennerly and Neely, 2002)

Figure 12 shows some typical wants and needs for each stakeholder group, both in terms of satisfaction and contribution. For example regulators, can assist organisations by providing advice and guidance, thus providing a contribution. These



one word definitions of satisfaction and contribution can be studied in more detail by referring to The Performance Prism (Neely, Adams et al., 2002).

These one word definitions of satisfaction and contribution are used to develop the supporting material for the evaluation method. This is discussed later in section 5.3.2.

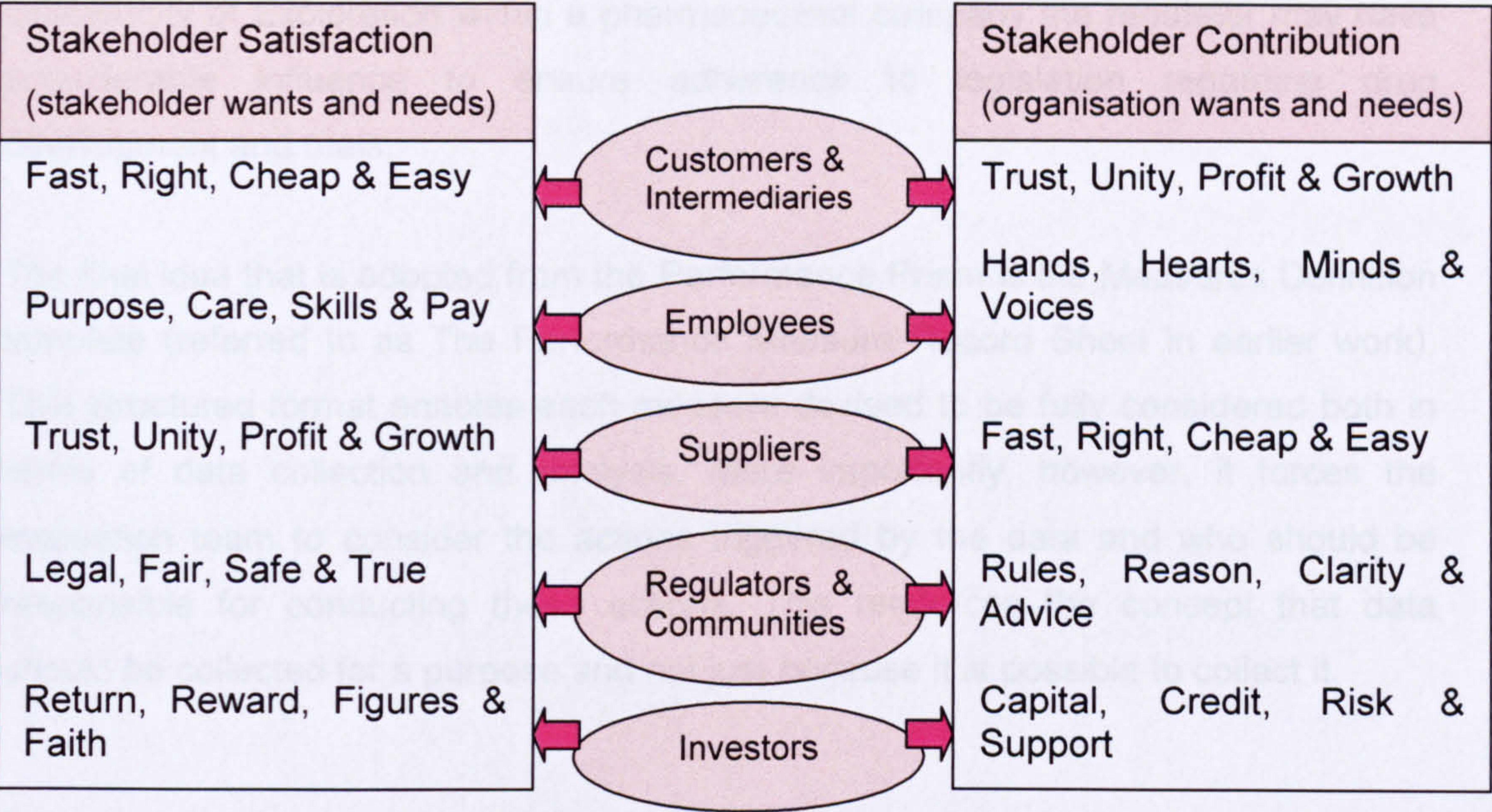


Figure 12: Stakeholder and Organisation Wants and Needs

Source: (Neely and Adams, 2001)

There are several ideas discussed within the Performance Prism that can be applied in the context of evaluating an Online Community. Indeed it could be considered that the evaluation method devised sits within a Prism framework.

Specifically the Online Community evaluation benefits from a multi-faceted approach as suggested by the Performance Prism. However, although the Prism identifies 5 facets, the Online Community Evaluation is restricted to 4, leaving aside discussions on the capabilities. This is because a capabilities perspective necessitates an inward view, unsuitable for distribution to all stakeholders for their comments. This distribution is a later step in the proposed method. With this in mind the 5 key questions that are used within the Performance Prism are restricted to 4, but are applied in the standard order to articulate what is needed to satisfy the stakeholders, the strategy and processes that have been adopted to achieve the results needed



and finally the contribution from the stakeholders that is needed for the Online Community to thrive.

Another key idea illuminated by the Performance Prism is the consideration of multiple stakeholders, especially the less obvious ones as they may play a more substantial role within the Online Community environment. For example in a Community of Exploration within a pharmaceutical company the regulator may have considerable influence to ensure adherence to legislation regarding drug development and trials.

The final idea that is adopted from the Performance Prism is the Measures Definition template (referred to as The Performance Measure Record Sheet in earlier work). This structured format enables each measure devised to be fully considered both in terms of data collection and analysis. More importantly, however, it forces the evaluation team to consider the actions triggered by the data and who should be responsible for conducting these actions. This reinforces the concept that data should be collected for a purpose and not just because it is possible to collect it.

### ***4.3 Performance Measurement Questionnaire***

The Performance Measurement Questionnaire is a technique that is employed to initiate change in an organisation's measurement systems. It was developed to assist firms to change their performance measurement systems in order to support improvements in manufacturing practices (Dixon, Nanni et al., 1990). The questionnaire is part of an overall process that seeks to build consensus and to create a commitment to accomplishing change within the performance measurement system where it restricts continuous improvement.

The questionnaire consists of 4 parts. The first part requests general information that can be used to classify the results based on position, location or business unit.

The second part, named Improvement Areas, focuses on collecting perception data related to areas in which the organisation is trying to improve its competitiveness. This can be focused toward specific areas such as production or marketing.



The layout of the Improvement Areas section is shown in Figure 13. In the centre of the questionnaire, the improvement areas are listed and these are flanked by two scales. The scale on the left hand side invites the respondent to comment on the amount of improvement that they feel is needed in this area for the company to remain competitive.

A “1” would indicate that the respondent felt no improvement was necessary. In contrast if the respondent believed that substantial improvement was required they should circle the “7” related to that improvement area. In a similar manner the respondent was asked to comment on the right hand scale as to whether they thought the current performance measures inhibited or supported the improvement.

PERFORMANCE MEASUREMENT QUESTIONNAIRE		
How much long-run improvement is required?	Improvement Areas	Do current performance measures support improvement?
None>>>>Great		Inhibit>>Support
1 2 3 4 5 6 7	RELIABILITY OF PRODUCTS IN THE FIELD	1 2 3 4 5 6 7
1 2 3 4 5 6 7	COMPETITIVENESS OF NTI PRICES	1 2 3 4 5 6 7
1 2 3 4 5 6 7	COMPETITIVENESS OF NTI HARDWARE PERFORMANCE	1 2 3 4 5 6 7
1 2 3 4 5 6 7	COMPETITIVENESS OF NTI SOFTWARE PERFORMANCE	1 2 3 4 5 6 7

**Figure 13: Extract of Performance Improvement Questionnaire Used at Northern Telecom - Improvement Areas**

Source: (Dixon, Nanni et al., 1990)

The third part of the questionnaire, labelled performance factors, relates to generic performance measures. Figure 14 shows an extract from a questionnaire that had a marketing focus.

In a similar format as before, the performance factor, or measure, is listed in the centre flanked by two scales. In this instance the left hand scale invites the respondent to indicate the importance that they attribute to that factor in terms of the company thriving. The right hand scale captures the respondent’s perception of how important this factor is to the organisation based on the current measurement systems.



PERFORMANCE MEASUREMENT QUESTIONNAIRE						
Of how much importance is this performance factor?	Performance Factors					How much emphasis is currently placed on measuring factor?
None>>>>Great						None>>>>Great
1 2 3 4 5 6 7	SALES GROWTH RATE: PER ACCOUNT					1 2 3 4 5 6 7
1 2 3 4 5 6 7	SALES GROWTH RATE: PER PRODUCT					1 2 3 4 5 6 7
1 2 3 4 5 6 7	NTI'S OVERALL MARKET SHARE					1 2 3 4 5 6 7
1 2 3 4 5 6 7	NTI'S MARKET SHARE BY INDIVIDUAL ACCOUNT					1 2 3 4 5 6 7

**Figure 14: Extract of Performance Measurement Questionnaire Used at Northern Telecom - Performance Factors**

Source: (Dixon, Nanni et al., 1990)

The final part of the questionnaire is devoted to capturing information on personal performance measures based on a variety of time frames. It also provides an option for respondents to submit general comments on the questionnaire, measurement system or need for change.

The data from the questionnaire is analysed based on 4 concepts (Dixon, Nanni et al., 1990; Neely, Gregory et al., 1995):

- Alignment – the extent to which a company’s strategies, actions and measurement systems are integrated and aligned
- Congruence – a general overview of the consistency of the measures with the strategy and actions, leading to the highlighting of gaps (where it is perceived that the measurement system does not support an improvement action) and false alarms (where the measurement system supports an improvement action in excess of its importance)
- Consensus – a comparison of results across classes based on the data supplied in the first part of the questionnaire, typically hierarchical levels or functional areas
- Confusion – this focuses on differences in perceptions relating to measurement and improvements within the classes identified in the first part of the questionnaire



The questionnaire is completed in a group environment and the feedback session of the analysis is what is believed to foster consensus and commitment to change.

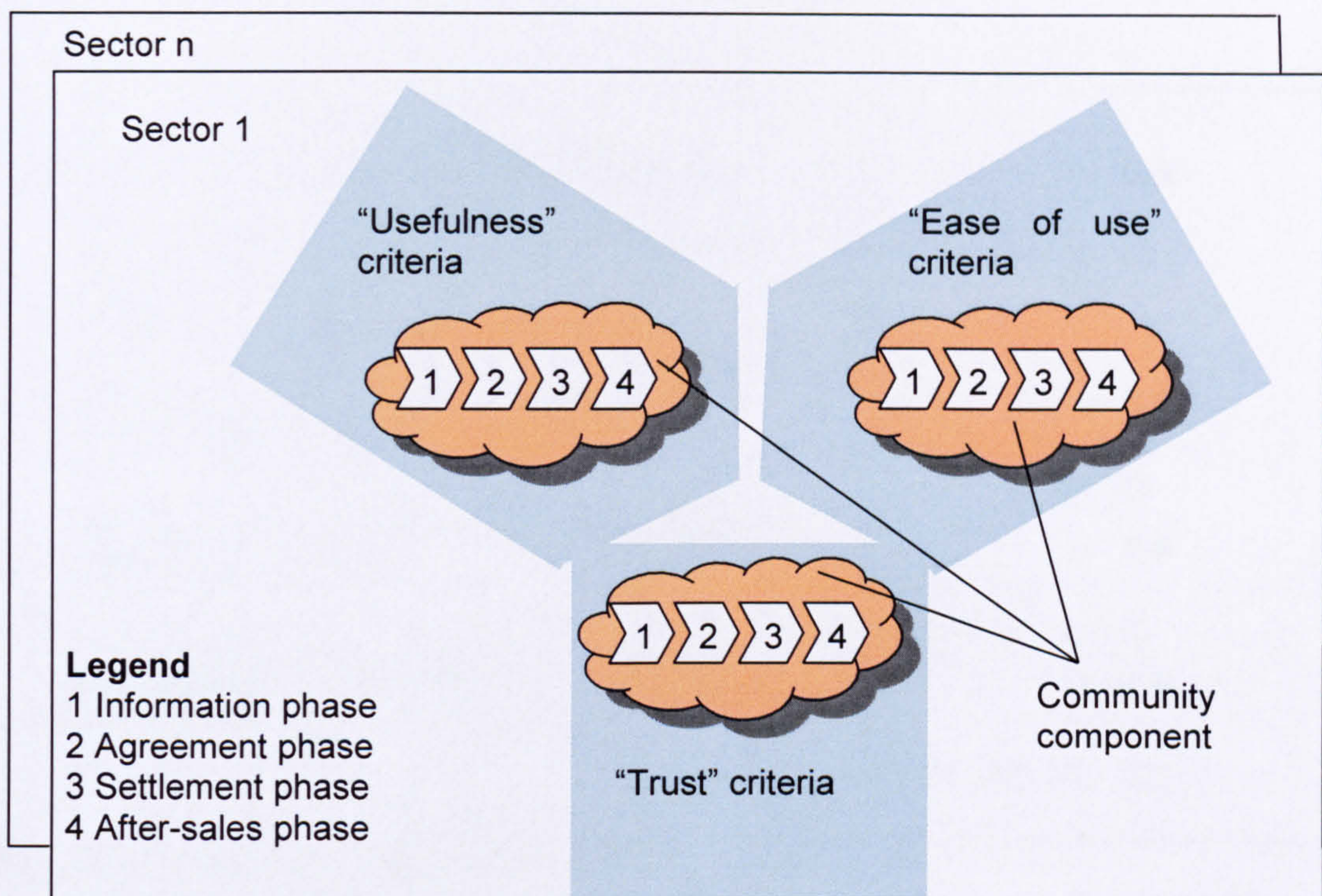
The Performance Measurement Questionnaire provides two main points of inspiration. These are related to the actual design and format of the questionnaire. Although the original questionnaire was used to highlight misalignment in measurement systems and improvement areas, it uses a format that could be replicated with regard to scoring measures on two different scales within a single questionnaire. The second important aspect gleaned from this research was the use of a Likert scale in the questionnaire. This is to reinforce the idea that the results from the questionnaire give an insight into direction rather than providing precise results.

#### ***4.4 Extended Web Analysis Method***

The Extended Web Assessment Method (EWAM) is a development of the original web assessment method developed in 1997, and incorporates ideas from the Technology Acceptance Model. It is specifically designed to evaluate e-commerce web sites, by offering a set of criteria that provide the basis for measuring the quality of the web sites (Schubert, 2002). The criteria have been developed based on previous research as to what makes a “good” e-commerce site and these can be categorised into 3 groups: usefulness, ease of use and trust. The criteria are also dispersed across the 4 phases associated with conducting an e-commerce transaction (Figure 15). In addition to this, two more sections have been included. One covers the community aspect of e-commerce and the other relates to categories that apply to all phases.

The EWAM is complex to use and is intended to assist in the study of selected web sites from a sector, hence the inclusion of sector in Figure 15. The criteria are valid for different sectors but the importance attributed to each will vary from sector to sector. It is not appropriate to apply the tool on a mass evaluation basis for two main reasons. Firstly in order to complete the evaluation the evaluators must be fully trained in the process and secondly they must complete a transaction, participating in all phases, including payment and delivery.





**Figure 15: Extended Web Assessment Method**

Source: (Schubert, 2002)

An empirical study using this method was conducted in 2001 by Schubert (2002), focusing on two sectors: consumer goods and banking. To complete the evaluation, the assessors first provided their views on the importance of each criterion for an e-commerce web site in that sector. This is represented by the first question in Figure 16. Next the participants were asked to rate 4 individual e-commerce sites from that sector. In the example shown in Figure 16 this is contained in the second question where 3 of the 4 web sites under study are visible.

The results from each assessment are collated to provide a sector profile and the individual company profile. In addition to this, a best of breed profile for the sector is also included. Criteria that have a low importance score have a minimum impact on the performance as the importance is used as a weighting factor.



<b>1. Importance for web sites in this sector</b>				
	+	+	-	- n.a.
Web pages and specific offers are easily found	+			-
	○	○	○	○
<b>2. Evaluation of web sites in this sector</b>				
Web pages and specific offers are easily found	+	+	-	- n.a.
http://www.webvan.com	+			-
	○	○	○	○
Web pages and specific offers are easily found	+	+	-	- n.a.
http://www.le-shop.ch	+			-
	○	○	○	○
Web pages and specific offers are easily found	+	+	-	- n.a.
http://migros.ch	+			-
	○	○	○	○

Figure 16: Two Step Assessment

Source: (Schubert, 2002)

A graphical output is used to display the results as in Figure 17. The key below the diagram indicates which phase of the process is being considered e.g. agreement or after-sales. Generic strategies can then be applied depending on which quadrant the result lie within.

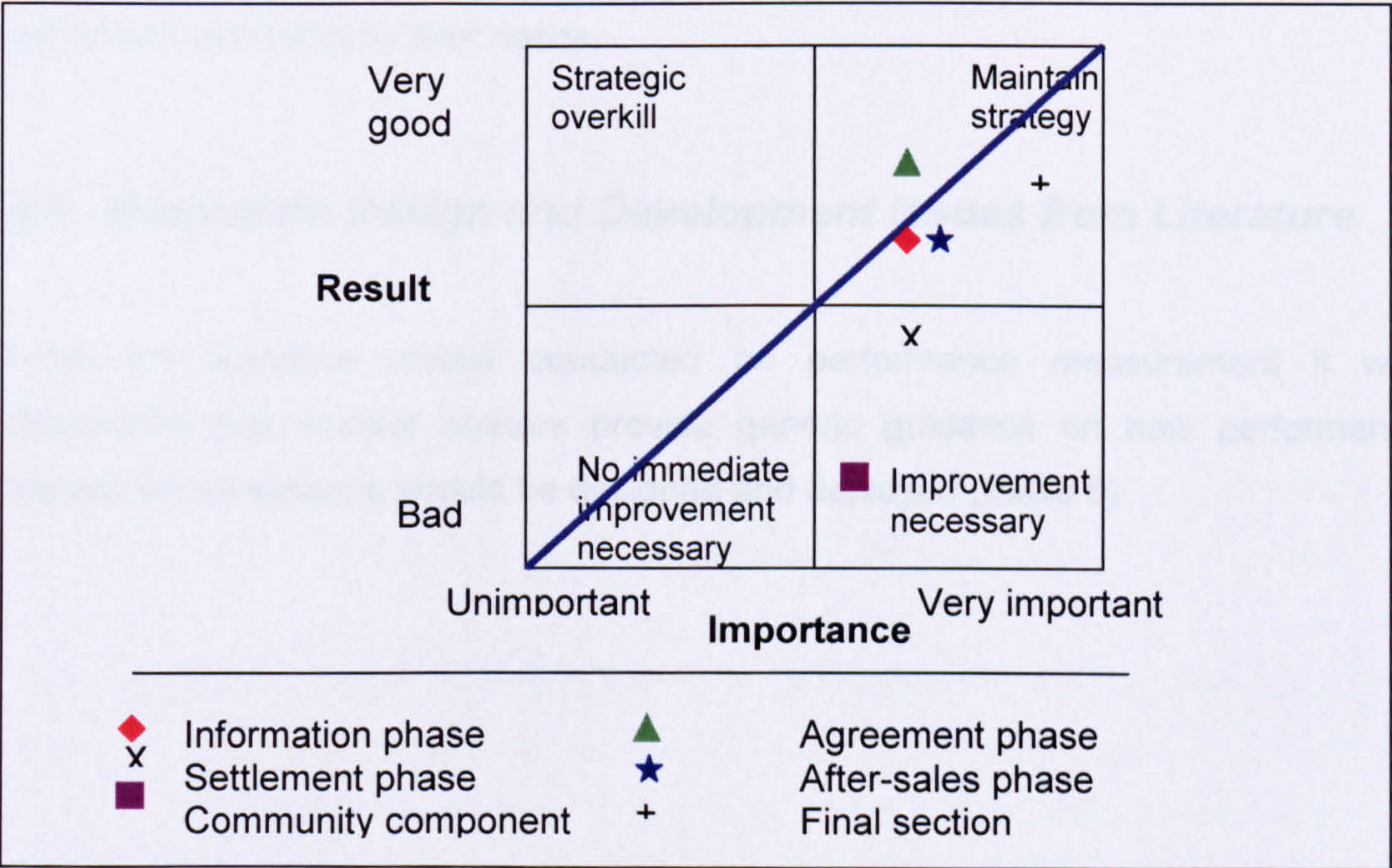


Figure 17: Results of Categories Versus their Importance

Source: (Schubert, 2002)



In order to produce the above chart (Figure 17) from the results of the survey it is necessary to review the detailed formulae for the calculations. This can be located in Schubert's paper on the empirical study (Schubert, 2002).

One of the benefits of examining Schubert's Extended Web Assessment Method is that it was designed to work with e-business models. However, to apply it to the evaluation of Online Communities without any changes would be inappropriate as it takes solely a customer perspective, ignoring the other stakeholders that were identified by considering the Performance Prism.

That withstanding, there are a number of ideas that can be applied directly to Online Community evaluation. Firstly Schubert (2002) discusses the role of importance in considering measures, especially with regard to different sectors having different views. This can be equated to the varying importance of measures in terms of different community types and/or different stakeholders. For this reason importance is considered as one of the scales in the questionnaire used in the proposed evaluation method. The second idea from Schubert's research is that the user's opinion of performance is actually based on their own perceptions (Schubert, 2002).

Rather than considering the Online Community from a technological standpoint or from a set of objective measures, the users can respond with their view of how it performed according to their needs.

#### ***4.5 Evaluation Design and Development Issues from Literature***

From the literature review conducted on performance measurement it was discovered that several authors provide generic guidance on how performance measurement systems should be designed and deployed (Table 5).



Author and Perspective	Processes in Development and Deployment of a Measurement System (Neely, Adams et al., 2002)	Developing a Comprehensive Performance Measurement System (Eccles and Pyburn, 1992)	Measurement System Design Process (Dixon, Nanni et al., 1990)
Design	Not applicable as authors have already designed their proposed processes.		
Customise	Define and Plan & Build Phases	Step 1 -3	Identify critical success factors and measures
Implement	Implement & Operate Phase	Not considered	Pilot measures
Review	Refresh Phase	Step 5	Review by team

**Table 5: Approaches to Designing a Performance Measurement System**

Based on the literature in Table 5 it was decided to develop and deploy the proposed evaluation method in 4 phases:

1. Design
2. Customise
3. Implement
4. Review

In the Design Phase the overall method was constructed and the supporting material that will be used to accelerate the timescale was created. This is not covered by the any of the authors as they are using existing processes.

The Customise Phase was when the supporting material was adapted to suit the particular Online Community under study. It is anticipated that each community will have specific needs so it is important to customise the measures to meet their circumstances. In this phase the actual measures were defined for the Online Community including the collection process. This equates to the Design and Plan & Build Phases suggested by Neely et al (2002). In terms of the guidance provided by



Eccles and Pyburn (1992) this covers Steps 1 through to 3, where the business models, the methods for collecting the data and the reporting arrangements are agreed. Based on the advice of Dixon et al (1990) this phase would cover the identification of critical success factors, new measures and older measures that are no longer required

In phase 3, the Implementation Phase, attention was moved to actually using the measures agreed previously. The system was implemented, data was collected and analysed, resulting in actions to improve the performance. This is comparable with the Implement & Operation Phase proposed by Neely et al (Neely, Adams et al., 2002).

The final phase was the Review Phase where periodic discussions are held to review the system, an essential part of measurement system design according to Dixon et al (1990). This enables the measurement system to be changed over time to meet the needs of the organisation, i.e. as the organisation evolves, the performance measurement system also needs to be refreshed (Eccles and Pyburn, 1992; Neely, Adams et al., 2002). This includes reviewing the data collection systems, the underlying assumptions about business models and the relevance of measures.

## **4.6 Summary**

This chapter has clarified the terms used in relation to performance measurement in this Executive Summary. It has also examined 3 performance measurement approaches and extracted the key elements that have an application in evaluation Online Communities:

- The Performance Prism
  - Is multifaceted considering stakeholders, strategies and processes
  - Takes account of multiple stakeholders not just shareholders and customers
  - Provides a format to facilitate the definition of the measures
- The Performance Measurement Questionnaire
  - Uses a dual ranking scale to collect and compare data about the same subject or measure



- Emphasises that the results are more about direction than precision by the use of a Likert scale
- Extended Web Analysis Method
  - Recognises the importance of specific criteria will be dependent on other factors such as sector
  - Combines data on performance and importance
  - Utilises perception data on performance

In this chapter a 4-phase development and deployment process was introduced. This is based on existing literature and consists of Design, Customise, Implement and Review phases.



## **5 The Proposed Evaluation Method**

### **5.1 Introduction**

This chapter presents the proposed evaluation method for Online Communities. In introducing the method the chapter:

- Provides an overview of the development and application phases explaining how these relate to the 4-step evaluation method that has been generated
- Presents a brief outline of the 4-step evaluation method
- Describes the supporting material used with the evaluation method to accelerate the outcomes, giving reasons for the choice of each item and the decisions affecting its design
- Discusses what happens in each of the design and application phases, specifically with regard to the steps undertaken and the outputs from each one

### **5.2 Overview of the Development Phases**

As mentioned in the previous chapter, there were 4 phases used in developing and applying the performance measurement system in this project. The first phase was named Design and this was where the foundations for the other phases were laid. There were two deliverables from the Design Phase as shown in Figure 18: the 4-step evaluation method for Online Communities and a set of materials that supports this method. These deliverables were used to modify the subsequent phases (Customise, Implement & Review) as also shown in Figure 18.

The time variable may run in two directions in Figure 18. Firstly, time progresses, as shown, when the activities to satisfy the Design, Customise, Implement and Review phases are completed. However, it is also possible that multiple communities (1, 2...n) may progress through the Customise, Implement and Review phases either concurrently or sequentially introducing a second time element to the diagram.



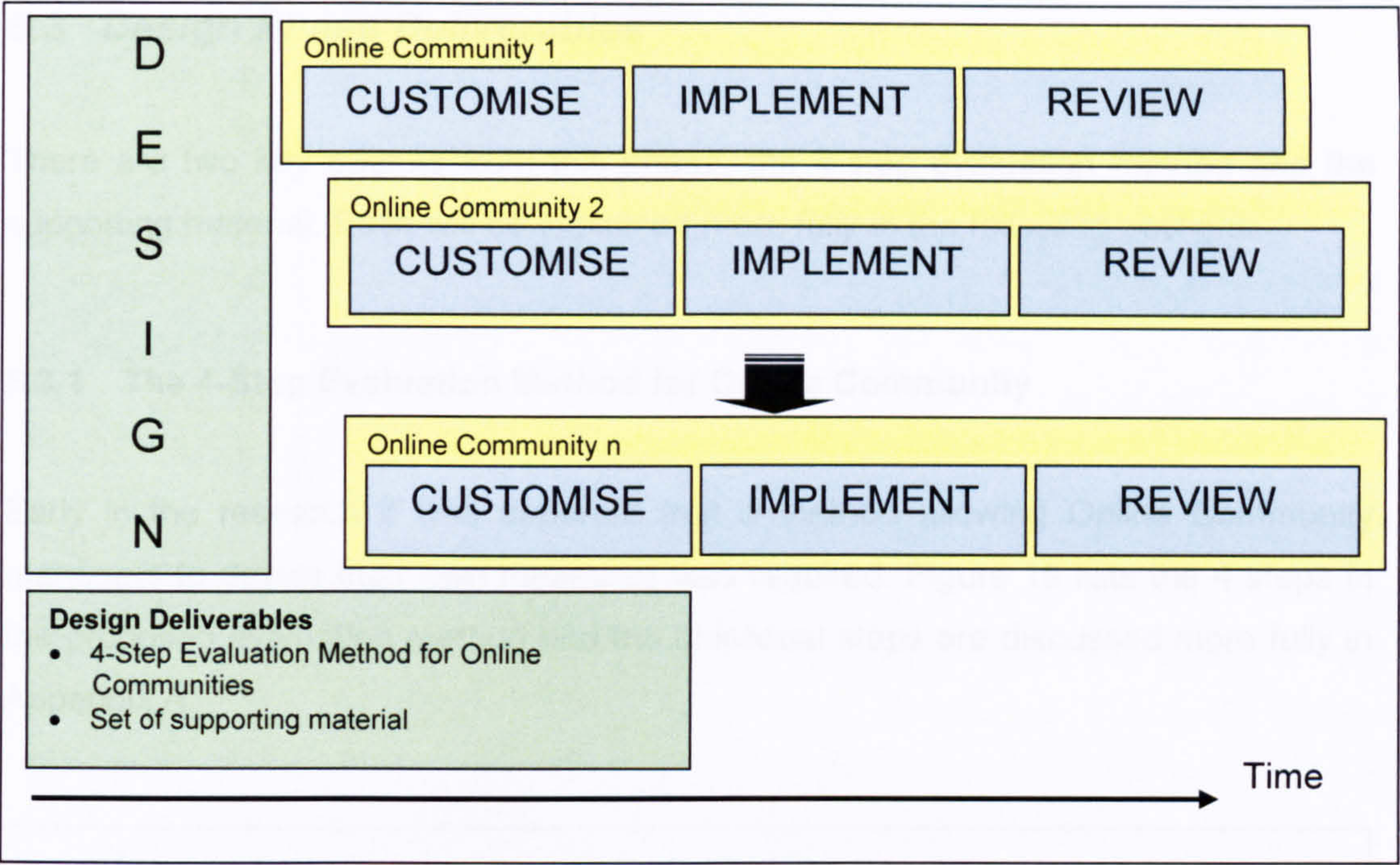


Figure 18: Design Deliverables and Subsequent Phases

A brief overview of what each phase aims to achieve is discussed below, before considering in detail the deliverables from the Design Phase (Figure 18). When these deliverables are understood it is possible to link these to the specific phases, and details of this will be presented later.

The Customise Phase is when the evaluation method is used. The supporting material created in Design is verified and measures appropriate to the Online Community under study are recorded. Later, in Section 5.4, the actual steps covered will be discussed.

Once the fully defined measures and data collection are agreed, the next phase commences. This is when the actual measurement system is applied and is called the Implementation Phase. At this point data is collected and reviewed, triggering actions to improve the performance of the Online Community.

The final phase is required to review the measurement system, and as such is known as the Review Phase. At this point underlying assumptions are revisited and the process is formalised. Section 5.6 examines this phase in more detail.



5.3 Design Phase Deliverables

There are two key outputs from this phase, the 4-step evaluation method and the supporting material. Each will be explained more fully in the following sections.

5.3.1 The 4-Step Evaluation Method for Online Community

Early in the research it was apparent that a method allowing Online Community managers to devise their own measures was required. Figure 19 lists the 4 steps in the proposed evaluation method and the individual steps are discussed more fully in Appendix A.

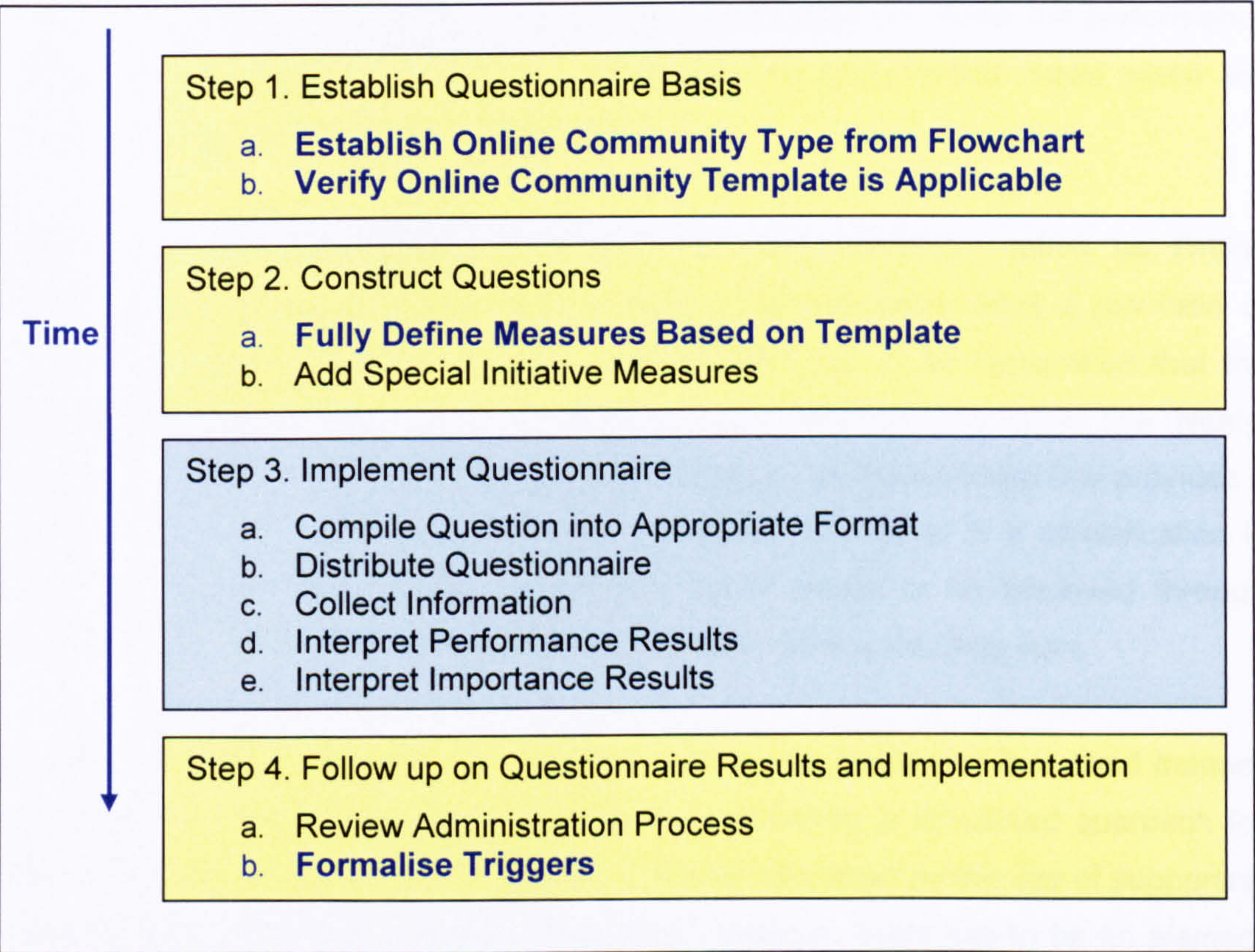


Figure 19: The 4-Step Evaluation Method for Online Communities

One of the areas of novelty in this work was the generation of the 4-step method presented in Figure 19. Although at this macro view the steps appear to be logical, it is the detail contained within each step, including the supporting material, which is



innovative. This method provides a structure which allows the stakeholders to identify their needs and thus measure them, ultimately providing support for decision making.

The four step method was developed so that a structured approach can be made to evaluating an Online Community. Steps 1, 2 and 4 contain an application of existing ideas within a new area supporting the originality of this work. In contrast Step 3 is merely included for thoroughness as it contains standard activities relating to conducting a survey.

The overall 4 step method is being presented in order to relate this to the phases described previously (section 5.2), it is possible to state that Steps 1 and 2 deal mainly with adapting the measures to suit the unique situation (Customise Phase) whereas Step 3 refers to actually using the measures that have been agreed (Implement Phase). Finally Step 4 allows the organisation to review the performance measurement system in its entirety, including the assumptions made when the measures were developed (Review Phase).

These 4 steps were devised to address a major constraint within an Online Community: the lack of resources. Online Communities often have a low ratio of support staff to members. In such a situation there has to be recognition that the Online Community cannot afford to measure everything that they would like (Neely, Adams et al., 2002). Therefore an approach needs to be implemented that provides a structure for their evaluation needs. As discussed in Chapter 3, a classification is used to simplify the process thus allowing rapid results to be achieved through customisation rather than developing the measures from a standing start.

In order for evaluation to be cost effective it has to be conducted in a rapid manner using minimum resources. This is achieved by providing a structured approach for developing and deploying the evaluation. It is also reinforced by the use of supporting material as discussed in the next sub section. However, there has to be an element of customisation to allow for the fact that there are many varieties of Online Community with different objectives.



### 5.3.2 Supporting Material

In order to conduct the evaluation process rapidly, it was decided to maximize the use of prepared material that could be adapted to suit individual situations. In addition by using the same method and the same material there was the opportunity to create a repeatable process which focused the thoughts of those involved. This supporting material comprised of:

- Flowchart to identify the type of Online Community to be examined
- A set of Online Community templates for each of the community types identified in Chapter 3
- A catalogue of measures related to each Online Community template
- The Measures Definition template and guide
- Online Community evaluation questionnaire template to collect performance and importance data

Each of these items is discussed in turn including why they were selected and on what they were based.

#### 5.3.2.1 *Flowchart*

Figure 20 shows the flowchart that was developed based on an analysis of interviews conducted with Online Community managers and current literature. It has 4 end points that represent the classes identified in Chapter 3. Essentially the flowchart allows the evaluation team to identify their type of community.

A flowchart was used since it was felt that it would be a business tool which would be familiar to the participants. Also it is possible for the participants to use the flowchart unaided and it provides a visual representation of the differences between the classes. Finally it ensures that the participants are agreed on whether they are actually evaluating an Online Community rather than a simple web site with no community elements. This is achieved by the endpoint “consider whether this is actually a community” which acts as a “drop-out” box.



It is important to understand that the Online Communities rarely fall neatly within one class. Indeed, it is possible that different participants from a single Online Community will reach different endpoints. This is not a major concern as the class is indicative, allowing the selection of material for the next step rather than attempting to fully describe the community.

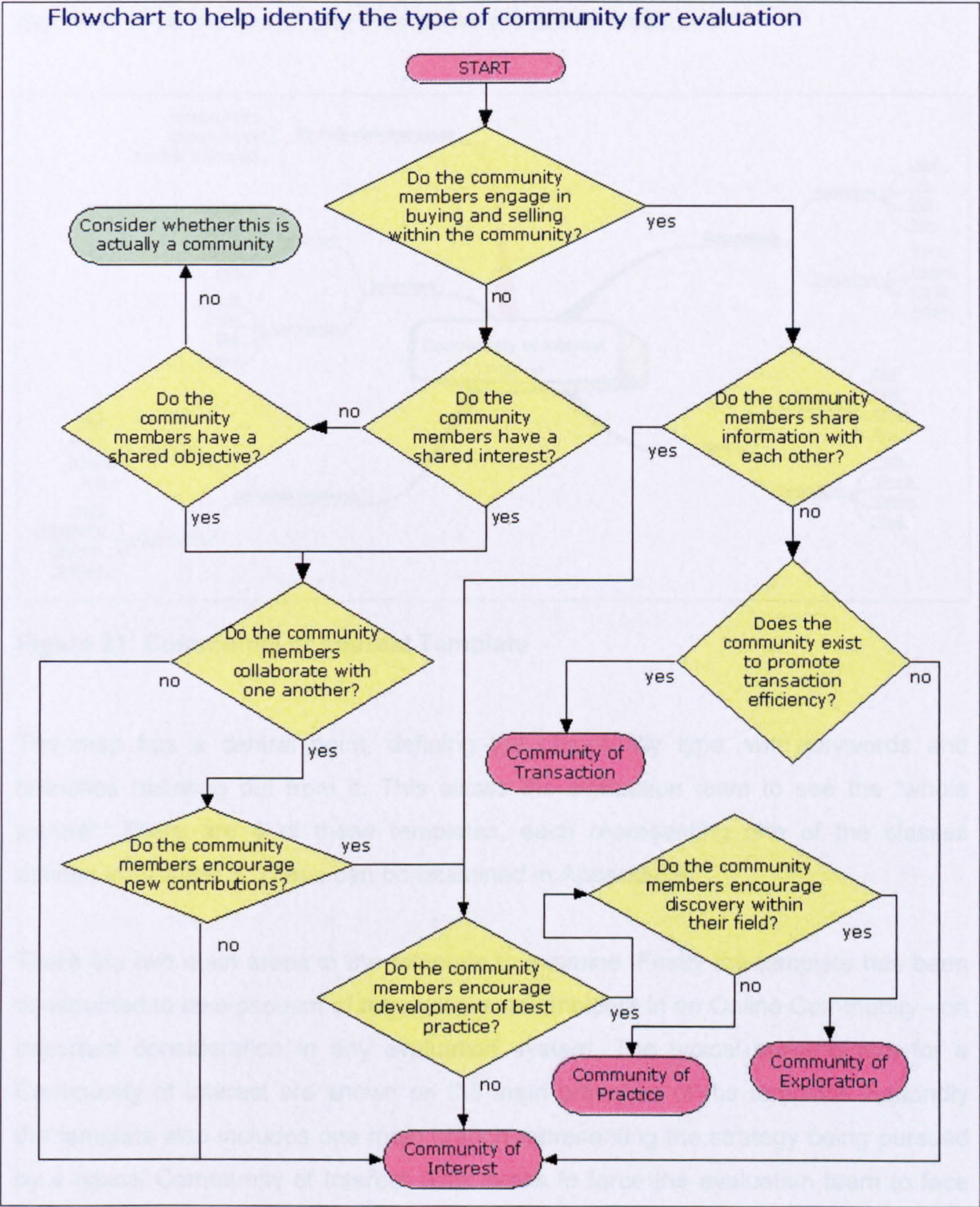


Figure 20: Flowchart to Identify Community Type



5.3.2.2 Online Community Templates

Figure 21 shows an Online Community template for a Community of Interest. Online Community templates for other community types can be found in published papers and portfolio submissions (McArdle and Jennings, 2004; McArdle, 2005). In essence the map provides a structured way for the evaluation team to determine the areas that need to be measured and thus derive the actual measures.

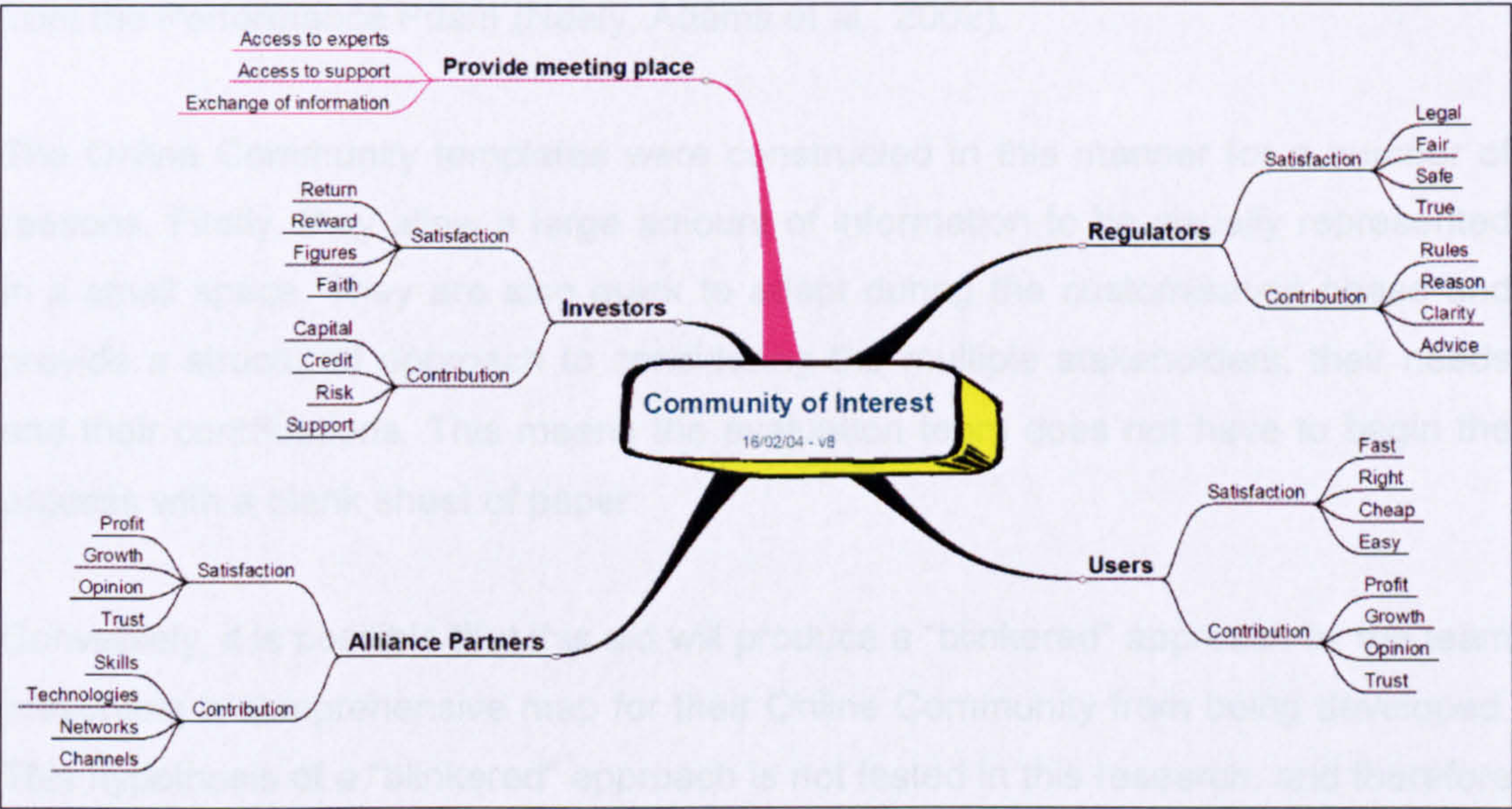


Figure 21: Community of Interest Template

The map has a central point, defining the community type, with keywords and branches radiating out from it. This allows the evaluation team to see the “whole picture”. There are 4 of these templates, each representing one of the classes defined in Chapter 3. These can be examined in Appendix B

There are two main areas in the template to examine. Firstly the template has been constructed to take account of the multiple stakeholders in an Online Community - an important consideration in any evaluation system. The typical stakeholders for a Community of Interest are shown on the main branches of the template. Secondly the template also includes one main branch representing the strategy being pursued by a typical Community of Interest. This seeks to force the evaluation team to face the idea that communities that have too broad a scope are less successful (Stuedemann, 2004). Each main branch has a number of sub-branches.



On a stakeholder branch, these sub-branches represent the contribution and satisfaction for each stakeholder. Alternatively on the strategy branch the sub-branches represent the 3 key processes that the Online Community must have in place to operate. At the end of each stakeholder branch there is a single word description identifying the needs of that stakeholder or the needs of the Online Community with regard to that stakeholder. The intention is that each of these needs should stimulate discussion about an appropriate measure. The single word descriptions of satisfaction and contribution needs have been directly reproduced from the Performance Prism (Neely, Adams et al., 2002).

The Online Community templates were constructed in this manner for a number of reasons. Firstly, they allow a large amount of information to be visually represented in a small space. They are also quick to adapt during the customisation phase and provide a structured approach to considering the multiple stakeholders, their needs and their contributions. This means the evaluation team does not have to begin the process with a blank sheet of paper.

Conversely, it is possible that this aid will produce a “blinkered” approach by the team preventing a comprehensive map for their Online Community from being developed. This hypothesis of a “blinkered” approach is not tested in this research, and therefore it is suggested that a future study is undertaken to determine this validity.

#### ***5.3.2.3 Catalogue of Measures for each Online Community Template***

Although it is anticipated that each Online Community will devise their own measures, there is concern that there will be occasions when the group needs assistance. To provide support at that time, a list of possible measures from each Online Community template has been created. This was completed by considering each stakeholder satisfaction and contribution in turn to inspire a suitable measure. This was also conducted for the processes, on the strategy branch, on the template. For example in Figure 21, one of the stakeholders typically expected to be present in a Community of Interest is called “Alliance Partners” and one of their contribution areas is “Networks”. From this it is possible to deduce a need to define a measure that captures this concept such as the number of visitors referred by the Alliance Partner’s web sites.



The measures provided are either adopted directly from The Performance Prism / Sample Measurement Catalogue (Neely, Adams et al., 2002) or have been created based on typical Online Community situations. One point to note is that the single word requirement, on the Online Community template, leads to different measures depending on the type of community. For example consider the “right” in terms of customer satisfaction. For a Community of Transaction this may translate to examining whether high quality products and services are available using a measure such as the number of customers that visit but fail to purchase. In contrast in a Community of Practice the satisfaction of the “right” product/service for the customer may be examined using the number of tools available for use. This represents a very different perspective.

**5.3.2.4 Measures Definition Template and Guide**

Originally known as the performance measure record sheet (Neely, Richards et al., 1997), the Measures Definition template is a key item in the development of robust measures. It ensures that the participants define their terms precisely, question whether the measure is appropriate and consider the data collection efforts attached to it (Neely, Richards et al., 1997). Table 6 shows the Measure Definition template.

Alliance Partner Networks	
Measure	
Purpose	
Relates to	
Metric/Formula	
Target level	
Frequency	
Source of data	
Who measures	
Who acts on the data	
What do they do	
Notes/Comments	
Completed by	
Date	

**Table 6: Measure Definition Template**

Source: (Neely, Richards et al., 1997)



The Measures Definition template was selected as part of the method as it is based on performance measurement literature and has been validated through action research studies (Neely, Richards et al., 1997).

In order to assist participants, a guide to completing the template was created and is contained within Appendix A. It specifically focuses on answers relevant to Online Communities.

5.3.2.5 Online Community Evaluation Questionnaire Template

Figure 22 shows an extract from an Online Community Evaluation Questionnaire. The questionnaire template was developed to enable the evaluation leader to quickly assemble a questionnaire that could collect perception data related to the measures that have been agreed.

The questionnaire takes its format from the dual ranking questionnaire proposed by Dixon et al (1990). However, it has been amended to collect data on the respondent's view of the measure both in terms of performance and also importance. The concept of using importance data alongside performance data has already been established (Schubert, 2002).

Additionally, in this case, the inclusion of importance data is required as it is possible that representatives from each stakeholder group may not be in attendance when the measures are agreed. Using this ranking it is possible to refute or accept the assumptions made as to what was important for each stakeholder group in this case.

Importance	Measure	Performance
Unimportant...Important		Poor.....Excellent
1 2 3 4 5	Key hour uptime	1 2 3 4 5 DK
1 2 3 4 5	Cost of support	1 2 3 4 5 DK

Figure 22: Sample Question from Performance Evaluation Questionnaire



The questionnaire uses rankings rather than absolute measures to reinforce the idea that the results give an indication of direction rather than precision. This was a strong message from the work of Dixon et al (1990). Both scales are identical with the exception of the DK (Don't Know) on the performance scale. It is considered possible that a respondent will not have the information available to judge performance, however, the respondent will always be able to state whether the measure under study is important or not on a personal basis.

## ***5.4 Customise Phase (Steps 1 and 2 in Evaluation Method)***

The Customise Phase allows the evaluation team to take the supporting material and to modify it to suit their particular situation. This phase covers Steps 1 and 2 in the evaluation method (Figure 19) and is conducted by the evaluation team in structured sessions. The steps are discussed more fully in the following sub sections.

### **5.4.1 Step 1a – Establish the Online Community Type**

This is conducted in a team session with the aid of the flowchart (Figure 20). Essentially it allows the participants to discuss and decide the type of Online Community that they have, which will act as the basis for selecting the material to support Step 1b.

### **5.4.2 Step 1b – Verify Appropriate Online Community Template**

It is preferable to complete this session with a selection of stakeholders, although it is recognised that this may not be practical. Using the Online Community template for the appropriate community type, the group must verify the:

- Stakeholders involved and whether there are any sub-groups of stakeholders
- Main strategy that the Online Community is supporting
- Processes that are needed to enable the strategy



The next task is then to consider each stakeholder in terms of contribution and satisfaction. From this information the group can then discuss measures that would apply to each of the above areas. A similar task is then conducted for the processes.

There are two key outputs from this step. Firstly, the group will have developed a map that represents their own Online Community. Also they will have generated a list of potential measures that have merit for their community.

Additionally there are two concerns that need to be considered during this step. It should be noted that it is possible to generate far more measures through this process than can realistically be adopted. Secondly the team may opt for measures that are easy to collect as opposed to ones that have business significance.

#### **5.4.3 Step 2a – Fully Define Measures**

The main activity within this step is to fully define the measures that have been generated. This is a time consuming and laborious process but it provides a systematic approach. It forces the team to consider what they are measuring and why, what they are aiming for and also what happens if they fail to meet the target.

The Measures Definition template (Table 6) is applied to each measure. At this point it is likely that some measures will be eliminated as they fail to trigger any action. It is also possible the additional measures will be added as terms are clarified resulting in the need for two views on the same concept e.g. down time can be measured in number of incidents or length of time. Each offers a different perspective and may trigger different actions.

The output from this step is a report containing a full definition of all the measures from the Online Community map. This will include data collection, analysis and resulting actions. It focuses attention on the relationships between measures, actions and costs.

#### **5.4.4 Step 2b – Special Initiative Measures**

Although the bulk of the measures are generated through considering the stakeholders' contribution and satisfaction, it is likely that the Online Community will



have some areas in which they desire short-term feedback. This step allows for a short brainstorming session to suggest possible measures before they are prioritised and the top 3 selected for inclusion in the list of measures. It also responds to the guidance provided by Neely et al (Neely, Adams et al., 2002) that a percentage of the measures should be temporary.

The Measures Definition template (Table 6) should be applied to the 3 selected measures. These can then be included in the report from the previous step. The outcome is a report containing a full definition of all the measures that are to be used.

### ***5.5 Implement Phase (Step 3 in Evaluation Method)***

During this phase the focus changes to actually collecting the data that assist in the decision-making processes related to managing the Online Community. This is done through the distribution and analysis of the questionnaire data relating to performance and also the “hard” data collected as outlined in the Measures Definition templates. Step 3 covers this part of the method which is mostly standard practice in questionnaire studies.

#### **5.5.1 Step 3a – Compile Questionnaire**

This step is an administrative task where the measures identified in earlier steps are compiled and added to the Online Community Evaluation template. The compiled questionnaire will allow the team to gather data from the stakeholder on the performance of the Online Community with respect to the measures. Due to the dual ranking scale it also allows the collection of data on how important the stakeholder believes each measure to be.

The importance scores act to combat any bias that may have been introduced in Step 1a, if the team did not have representatives from each stakeholder group.

#### **5.5.2 Steps 3b and 3c – Distribute and Complete Questionnaire**

The evaluation leader is primarily involved in this step. Although the forms are actually completed by the sample of stakeholders, the evaluation leader is



responsible for the distribution of the forms and also for any activities such as reminder calls to encourage increased response rates.

It was decided that the questionnaire should be conducted as a paper based form rather than a web page. This was so as not to inhibit responses from individuals who were less familiar with Internet technology – it is feasible that an investor in an Online Community may have little or no Internet experience. To facilitate responses a fax-back number as well as a postal address are provided.

The number of stakeholders contacted to complete the questionnaire is dependent on the size of the Online Community. In a situation where there are less than 40 members, it is recommended that all stakeholders are contacted. However, some Online Communities are extremely large, greater than 1000 members. In such a case stratified sampling (Hussey and Hussey, 1997) should be adopted with each stakeholder group identified acting as a category from which random samples can be extracted.

The output from this step is a batch of completed questionnaires.

### **5.5.3 Step 3d – Collate and Interpret Results on Current Performance**

In Step 3d the evaluation leader collates the results from the right hand scale on the completed questionnaires. This is the perception data that relates to the performance of the Online Community.

The results can be utilised in two ways. Firstly, they can be compared with the targets set for each measure in Step 2a. Action can then be taken to encourage the good results or to reverse a poor result, as agreed in the completed Measure Definition template for the appropriate measure.

The second use for the results is to link the perception data to the objective data for the measure that has been collected. In Step 2a, each measure is considered, and in the majority of cases a formula for collecting objective data is agreed. This allows the objective data to be collected on an ongoing basis independent of the questionnaire which collects perception data from the stakeholders. Such a link increases understanding of the stakeholder views e.g. downtime targets may be set at 1



incident a month. The returns from the stakeholders over a period when the downtime incidents averaged 4 times per month may indicate that they believe this to be a satisfactory level, refuting previous assumptions.

The output from this step is a list of actions to be undertaken with named people responsible for ensuring they are conducted in a timely manner. However, in the first iteration of the method it is advisable to review the results with the evaluation team before issuing the list of actions.

#### **5.5.4 Step 3e – Review Importance Rankings from Questionnaire**

Step 3e addresses the issue that was briefly discussed in Step 1b, that during the initial selection of measures it may not be possible to get representatives from all stakeholder groups to participate. By using the importance scale it is possible to verify the assumptions that were made as to what is important to each stakeholder group. The importance ranking is also valuable since the opinions of the stakeholders are likely to change over time (Kermally, 1997). This provides a method to capture this information.

This step is conducted by the evaluation leader but it is essential that the results are reviewed by the evaluation team. It is possible that the results will show that some of the measures are thought unimportant by the stakeholder, and in this situation there should be consideration as to whether to eliminate these measures.

Conversely the results may show that the Online Community is failing to capture a number of measures that are of significance to the stakeholder. This creates an opportunity to add new measures, which as before will need to be fully defined using the Measures Definition template.

The main output from this step is a list of measures to be eliminated and a set of fully defined measures that need to be added to the evaluation.



## **5.6 Review Phase (Step 4 in Evaluation Method)**

There are two main aspects to the review phase. This phase prompts a discussion as to what lessons have been learned during the implementation. It also provides a formal documented evaluation process for the Online Community.

### **5.6.1 Step 4a – Review Administrative Process**

The implementation of the evaluation system is reviewed in Step 4a. At this point the lessons learned, which could for example relate to the assumptions made, the method of questionnaire distribution or the composition of the team, should be recorded for the Online Community's records. This knowledge will assist in any future evaluation programmes.

The output from this step is a formal record of the lessons learned in the implementation.

### **5.6.2 Step 4b – Formalise Triggers**

The Review Phase, in addition to considering what has been learned, also has a function to look forward. This is achieved by formalising the evaluation process. Decisions need to be made such as how often the questionnaire is distributed, how the sample is selected and how often the entire process should be reviewed (including amendments to temporary measures). This is in response to the literature that states that performance measurement systems are not static and therefore need to be periodically reviewed in order to evolve and remain effective in a changing environment (Dixon, Nanni et al., 1990; Armstrong and Hagel III, 1996; Neely, Adams et al., 2002).

It is also important to consider what would cause the entire process to be re-run i.e. is there a trigger that would mean the Online Community map would need to be re-created and a new set of measures defined? Although it is impossible to create a definitive list of triggers that would cause this action there should be a discussion to prompt thoughts on this matter. Typical triggers could include:



- Changes in the funding of the Online Community
- A major change in the Online Community direction
- A takeover of the parent organisation of the Online Community
- Fundamental changes to the strategy adopted by the Online Community

The output from this step is the process that will be followed to evaluate the specific Online Community.

## **5.7 Summary**

This chapter presents the proposed evaluation method for Online Communities that is adaptable and can be customised to suit a variety of situations in a short time frame. By outlining the method this chapter provides an overview of the development and application phases used. It also describes the supporting material used in the process:

- Flowchart to identify the type of Online Community to be examined
- Set of Online Community templates for each of the community types identified in Chapter 3
- Catalogue of measures related to each Online Community template
- Measures Definition template and guide
- Online Community evaluation questionnaire template

An outline of the 4-step evaluation method is presented:

### **Step 1: Establish Questionnaire Basis**

- a) Establish the Online Community Type
- b) Verify Appropriate Online Community Template

### **Step 2: Construct Questions**

- a) Fully Define Measures
- b) Add Special Initiative Measures

### **Step 3: Implement Questionnaire**

- a) Compile Questionnaire
- b) Distribute Questionnaire



- c) Collect Information
- d) Interpret Performance Results
- e) Interpret Importance Results

**Step 4: Follow Up on Questionnaire Results and Implementation**

- a) Review Administration Process
- b) Formalise Triggers



## **6 Results of Testing the Evaluation Method**

### **6.1 Introduction**

This chapter seeks to present the tests that were conducted on the Online Community Evaluation method that was developed in the previous chapter.

There are 7 main elements contained within this chapter:

- An outline of the aims of the pilot studies and a discussion of the selection of the Online Communities that participated
- An overview of the AIM Competitiveness Fellows' sub-community, the observations made during this study and the changes resulting from the study
- An overview of the EPPIC Faraday Partnership, the observations made on the study which has been revised to take account of the feedback from the first study, and the proposed amendments arising from the study
- A discussion of the results across the two studies, highlighting the differences and similarities
- A proposal to incorporate a community "health" branch to ensure that the relationship aspect is considered in the evaluation
- A review of what can now be achieved as a result of this research
- Consideration as to what was not achieved through the research

Although a high level overview of the testing is presented here, full details of the pilot studies and the conclusions drawn are available in Submission 7, Testing an Online Community Evaluation Method: A study of two cases (McArdle, 2005).

#### **6.1.1 Aim of the Pilot Study**

The aim of the pilot study was two-fold. Firstly and most importantly, it sought to determine whether the evaluation method for Online Communities did assist managers and owners to manage their community. Specifically, did this method satisfy the requirements as identified earlier in the project?

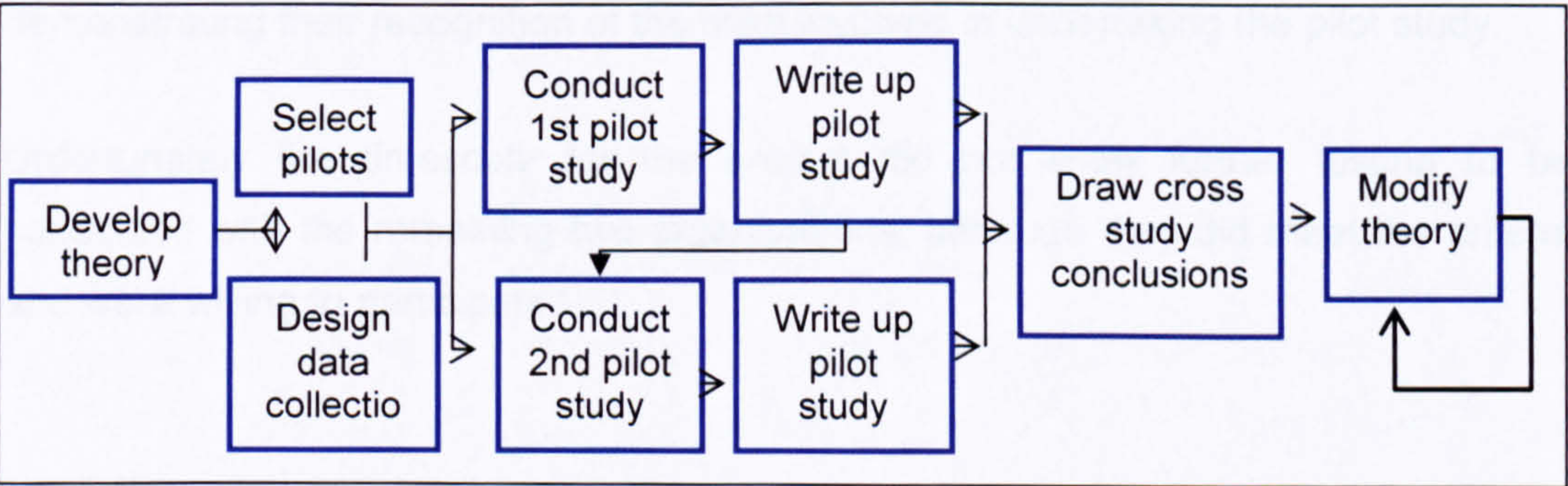


- It must be simple to implement with minimum use of already limited resources
- It must be flexible to allow customisation to suit the needs of the Online Community that is under study
- It should allow action to be taken to improve the day-to-day management of the Online Community
- The measures collected must help answer business questions

The second lesser objective in the testing was to learn more about the Online Communities involved within the study. Through detailed observations it was hoped to gain a greater understanding of the differences and similarities within the communities and thus contribute to the general knowledge about Online Communities.

Figure 23 shows the methodology that was adopted through the testing. Firstly the theory, as above, was developed before the participants were considered and the data collection methods designed. Then each pilot study was conducted and the results compiled on an individual basis (sections 6.2.1 and 6.3.1), although learning from the first pilot was used within the second sequential pilot. Finally, the results across the two studies were compared to allow the deduction of a number of cross study conclusions (section 6.4). This permitted the original theory to be modified in light of the results. After a subsequent reflection period, indicted by the final loop, it was possible to consider the results in conjunction with the additional literature that was reviewed at the request of the examiners.

The organisation selection and data collection are considered in more detail in the following sections.



**Figure 23: The Testing Process Followed**



The organisation selection and data collection are considered in more detail in the following sections.

### 6.1.2 Organisational Selection

It was decided that in order to gain the greatest insight, the organisations selected to take part in the pilot studies should meet a number of requirements, as listed below. They must:

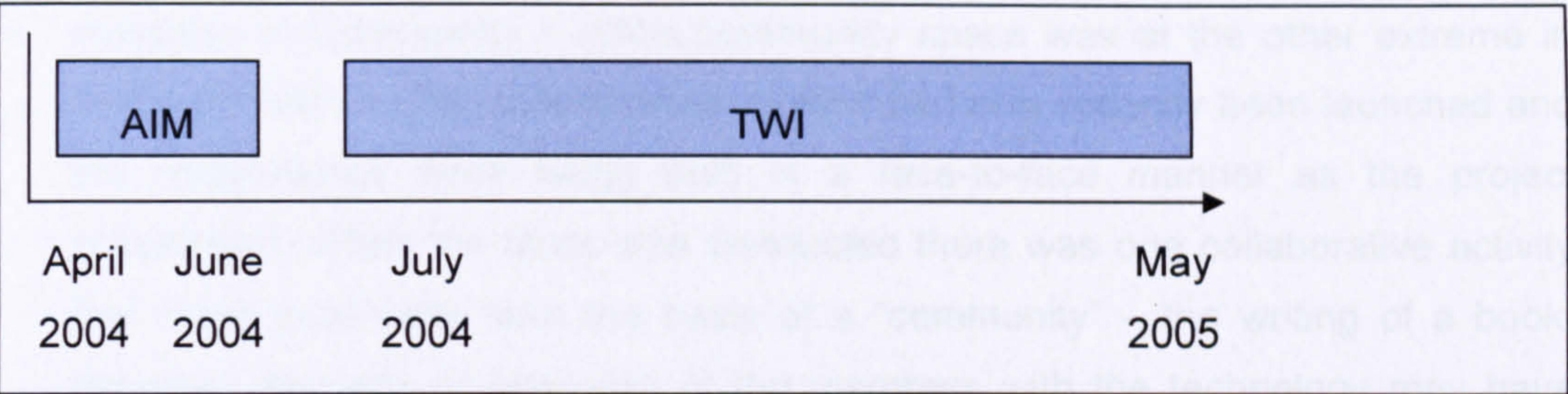
- Provide an Online Community space so that it is possible to apply the method
- Be willing to invest time and resources to generate a set of measures that will help them to evaluate their own Online Community. In practice this may mean that only organisations that suspect that an “off-the-shelf” set of measures will not be appropriate may be selected for participation
- Be willing to participate in a research project, where the results are not guaranteed. Also there will be an onus on them to provide feedback to establish the value of the method and also enable the method to evolve

With this in mind, 4 organisations were approached and two selected for the pilot studies. The first of these was AIM, a research organisation that was keen to use their Online Communities’ space to support collaborative working between remote colleagues. As such they were aware that time would be invested without a definite guarantee of results.

The second business selected for participation was TWI, an organisation with a strong engineering and manufacturing focus. This organisation had a number of Online Community spaces and also had strong links to research establishments, demonstrating their recognition of the risks involved in undertaking the pilot study.

Unfortunately the timescale for the project did not allow further testing to be conducted with the remaining two organisations, although they did meet the criteria and were willing to participate.





**Figure 24: Timing of Pilot Studies**

To facilitate learning across the pilot studies it was decided to conduct them in a sequential manner. This way changes made as a result of the first study could be applied and considered during the second one. This was to ensure that the changes made were not exclusive to the unique circumstances of the AIM Online Community selected – the Competitiveness Fellows’ sub-community.

**6.1.2.1 Reflections on Participating Organisations**

The opportunity was taken after the research had been completed to review the organisations that participated for appropriateness with the benefit of hindsight. At this point it became clear that there were some compelling reasons why they should not have been chosen to participant in the pilot studies.

- Complementary Online Community – TWI’s community space was set up to act in conjunction with their face-to-face meetings. It became apparent that relationships were sustained at the events, or perhaps through private email, rather than through the shared community space. Essentially there was less focus on whether the community was interacting online and the community space was more used for one way dispersion of information to the members. Looking at Rainey’s model (Rainey, 2001) did not progress beyond stage one – an information point. Really there needed to be some aspect of online interaction and development of shared values to see the impact of the community online.
- End of Life – another concerning aspect about the TWI community was the fact that it was nearing its end of life. This meant there was less impetus to act upon the results to gain benefit for the community. It also had the added disadvantage that there was less potential to build relationships as the community space was soon to be removed.



- Inception of Community – AIM's community space was at the other extreme in terms of lifespan. The collaborative venture had only recently been launched and the relationships were being built in a face-to-face manner as the project progressed. When the study was conducted there was one collaborative activity that could potentially form the basis of a “community” – the writing of a book. However, the lack of familiarity of the members with the technology may have hindered the use of the Online Tools., which they could then bypass to use private channels of communication. In essence the relationships, trust and social capital needed to form the basis of the “community” had not yet had time to form.
- Focus of research – despite the recognition that Online Community evolves and the owners can merely provide a space for the Online Community to inhabit, there was still a desire to focus on measures that look at the space usage without any regard for interactions within the space. For example measure such as number of logins and number of documents within the knowledge directory rather than any indications of collaboration within the documents. The desired measurements clearly indicated that community was not the prime function of the space but rather the development and storage of documents i.e. it was an information space.

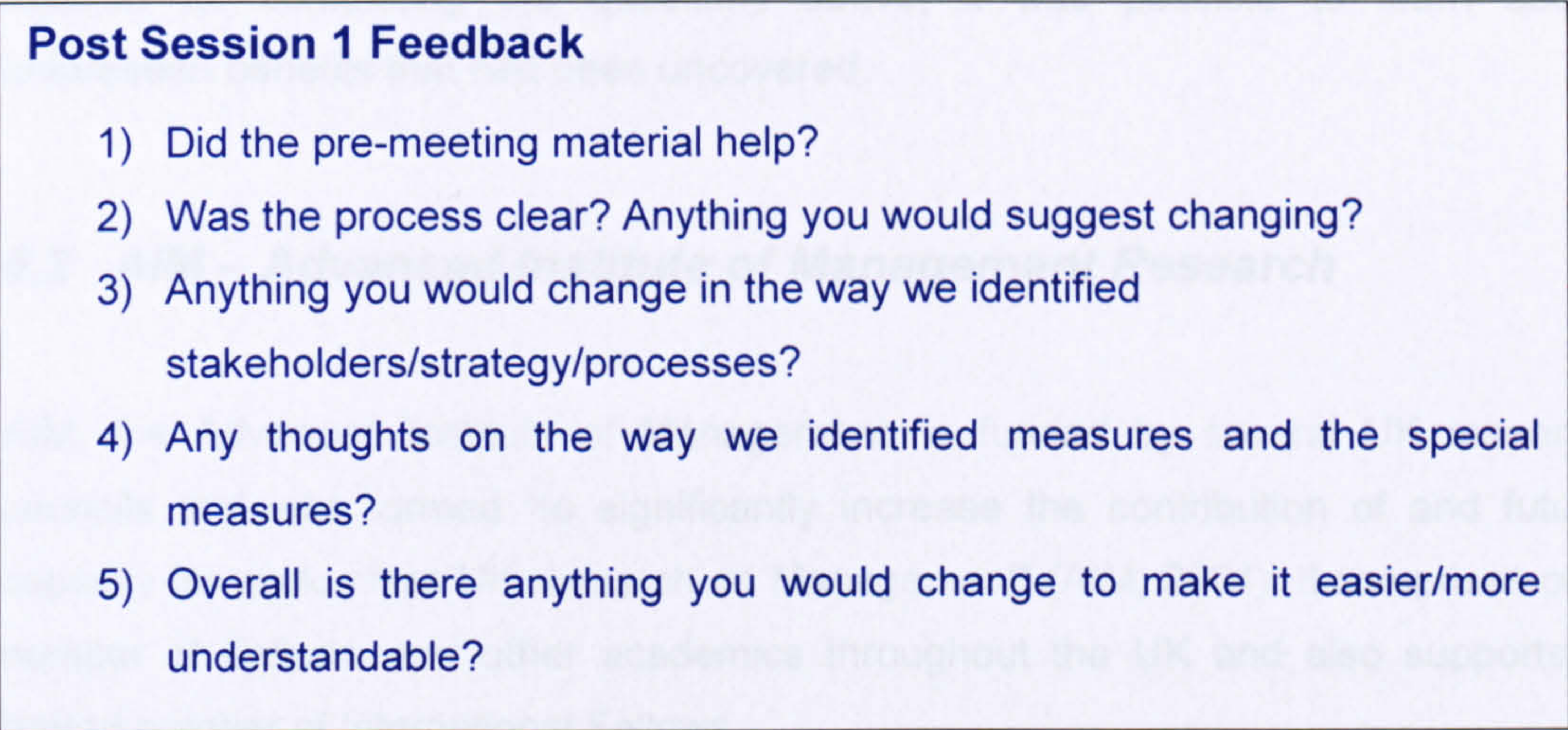
### **6.1.3 Data Collection Process**

As mentioned previously the pilot studies sought to determine whether the evaluation method for Online Communities did assist managers and owners to manage their community. To this end there were two main questions that needed to be answered:

- Does the feedback validate the supporting material?
- Does the feedback validate the evaluation method and provide benefits?

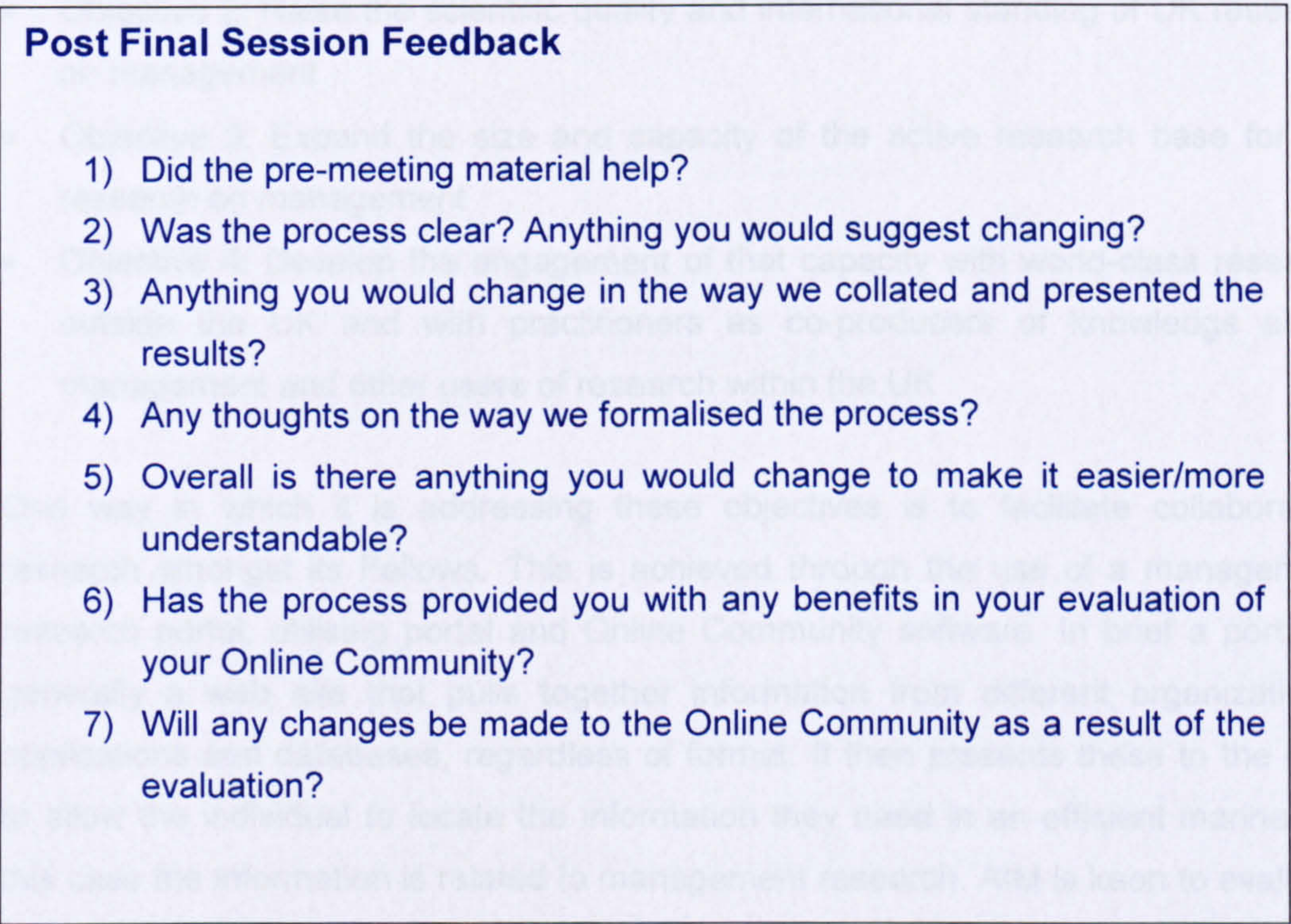
Although unstructured observations were welcome, a set of feedback questions were generated and issued to participants. After the initial session typically covering Steps 1 and part of 2 (select community type, verify template and brainstorm special initiatives measures) the questions in Figure 25 were emailed to determine if the supporting material was appropriate and helpful. The responses to these questions also gave an insight into the participants' opinions on whether there were amendments that needed to be made to the early steps of the method.





**Figure 25: Data Collection Relating to Supporting Material**

Once the evaluation method had been applied in its entirety or to the point when the participants withdrew from the method, a second set of questions was issued.



**Figure 26: Data Collection - Benefits and Validity of Evaluation Method**



By allowing the respondents to return their own observations rather than, or in addition to, completing the questions above, it was possible to learn about unforeseen benefits that had been uncovered.

## **6.2 AIM – Advanced Institute of Management Research**

AIM, the Advanced Institute of Management, is funded by several UK research councils and was formed “to significantly increase the contribution of and future capacity for world class UK research on Management” (AIM, 2004). It comprises of a number of Fellows and other academics throughout the UK and also supports a limited number of International Fellows.

AIM has 4 stated objectives (AIM, 2004):

- Objective 1: Conduct research that will identify actions to enhance the UK's international competitiveness
- Objective 2: Raise the scientific quality and international standing of UK research on management
- Objective 3: Expand the size and capacity of the active research base for UK research on management
- Objective 4: Develop the engagement of that capacity with world-class research outside the UK and with practitioners as co-producers of knowledge about management and other users of research within the UK

One way in which it is addressing these objectives is to facilitate collaborative research amongst its Fellows. This is achieved through the use of a management research portal, utilising portal and Online Community software. In brief a portal is generally a web site that pulls together information from different organizational applications and databases, regardless of format. It then presents these to the user to allow the individual to locate the information they need in an efficient manner. In this case the information is related to management research. AIM is keen to evaluate whether the Online Community software is helping researchers to meet the initiative objectives.



Although AIM has several Online Community spaces it was decided to pilot the method using the Competitiveness Fellows' sub community space. This was for 3 reasons:

- This Online Community embodies the spirit of the AIM initiative in that it attempts to address Objective 1
- The membership of the group allows the responses to be collected from Online Community participants that have a wide range of computer literacy levels, thus demonstrating that application is not limited to technology based groups
- It was believed that this group exhibited great complexity in its make up and technological tools and therefore offered the greatest learning potential

The Competitiveness Fellows sub community has approximately 20 members and 5 stakeholder categories (Figure 27). The stakeholders, along with the main processes, can be identified in the map below which was generated as one of the outputs of the pilot study.

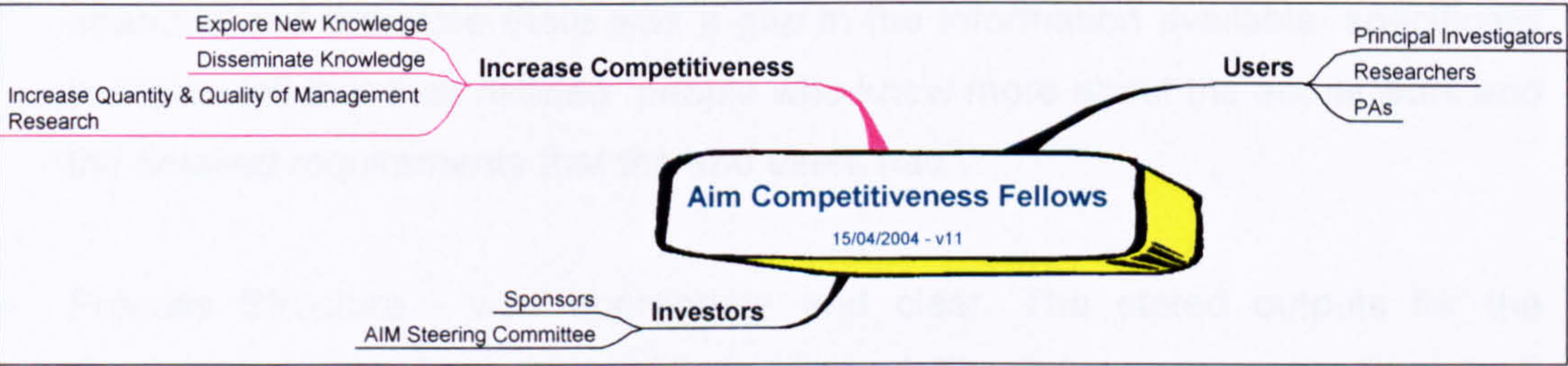


Figure 27: Map of Competitiveness Fellows' Community

6.2.1 Observations on the Evaluation Method

Although the original intention was to collect two sets of feedback per participant, circumstances dictated that only the first 4 steps were conducted with regard to the evaluation of the Competitiveness Fellows' sub community. The following comments therefore relate to the feedback collected after the initial session.

Overall the response was that the evaluation method produced a “good set of measures”. There were some positive comments, however, there were also areas of concern. The following paragraphs detail these and possible ways to strengthen the evaluation method.



- **Pre-meeting Material in General** – this had been very helpful and had also speeded up the evaluation process with comments such as “this was really useful for getting me up to speed for the meeting” and “useful to see it beforehand” being recorded. The flowchart was described as “easy to follow”.
- **Community Template** - seemed to generate an amount of confusion, especially the one-word descriptions for stakeholders' focus areas (e.g. Return, Reward, and Figures). There was also the comment that there was too much information to take onboard. The weighting element to the stakeholder branches was not used in practice; again this was due to the large amounts of information being processed.
- **Participant Requirement** - the evaluation team should contain representatives from all stakeholder groups, however, in practise this may not be feasible. This potential lack of participation is the main driver for using the dual ranked questionnaire that either refutes or substantiates the assumptions made by the evaluation team. In this evaluation only members of the AIM Portal Group attended and therefore there was a gap in the information available, specifically the team felt that they needed “people who knew more about the actual work and the detailed requirements that the end users had”.
- **Process Structure** - was appropriate and clear. The stated outputs for the sessions helped to keep the meetings focused. The initial session was “draining”, requiring the participants to take onboard a large amount of information in a single sitting.

### **6.2.2 Amendments to the Evaluation Method**

Although the evaluation method itself was not changed in response to the feedback received, there were a number of amendments as to how it was used. 4 of the main ones are documented below:

1. The process was reformatted into 3 sessions in the hope that this would help to prevent the audience being overwhelmed by the amount of information received.
2. A generic community template was produced to help guide participants through the detail of the specific template that they will use.



3. The single word descriptions (e.g. Return, Reward, Figures) were removed from the community templates to reduce confusion.
4. It was suggested by a third party that guidance on setting SMART objectives would be beneficial when defining the measures. A note outlining these has been added to the evaluation pack.

It must be emphasised that the changes made, in response to the comments from AIM, did not create an evaluation method that was suitable for application only in their unique circumstances. Instead refinements were made that were of a generic nature, such as providing examples and clarifying steps.

### **6.3 TWI – The Welding Institute**

TWI is the operating arm of The Welding Institute and promotes itself as one of the foremost research and technology organisations. The organisation's core area of expertise is the welding and joining of engineering materials. In order to disseminate this knowledge TWI is an active participant in a number of technology networks and ventures. One of the ways in which it supports knowledge transfer is through Faraday Partnerships which have 4 Principles (Quo-Tec Limited, 2004) focusing on the promotion of:

1. Active flows of people, science, industrial technology and innovative business concepts between the science & engineering base and industry
2. The partnership ethic in industrially relevant research organisations, business and the innovation knowledge base
3. Core research that will underpin business opportunities
4. Business-relevant post-graduate training, leading to life-long learning

The Electronics and Photonics Packaging and Interconnection (EPPIC) Faraday Partnership was selected for the pilot study as it had clear boundaries and was considered a mature group, as it had been operating for more than 3 years. There was also a suggestion that any learning from this pilot would be replicable across a number of other networks in which TWI played a host role, therefore providing greatest benefit.



The EPPIC Faraday Partnership comprises a number of academic and commercial organisations (Figure 28) that seek to meet the aims stated above by using a combination of face-to-face events and a web site.

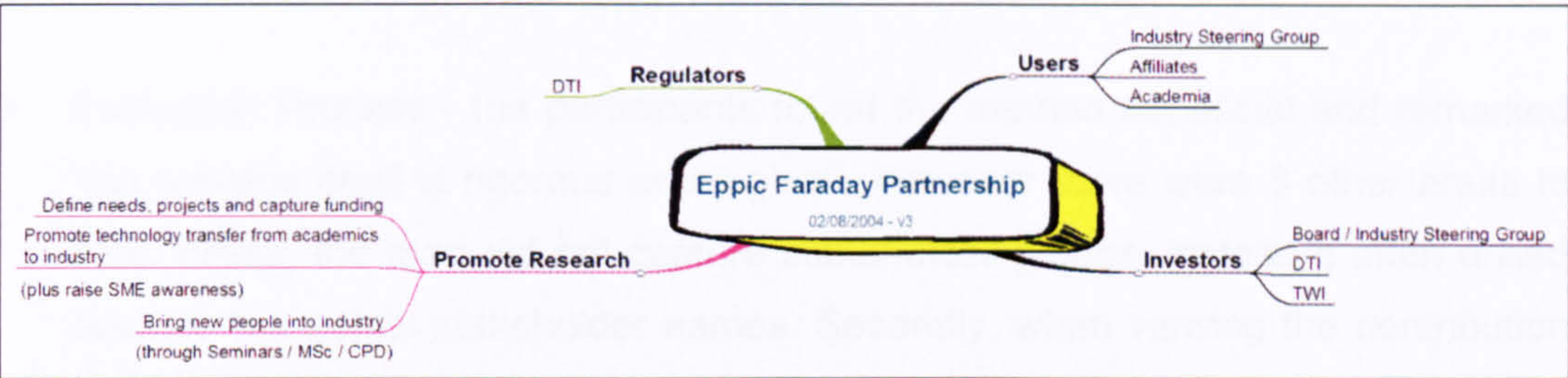


Figure 28: Map of EPPIC Faraday Partnership Community

6.3.1 Observations after Steps 1 and 2

As discussed in section 6.1.3 the intention was to collect feedback from the participants at two junctions within the pilot studies. This first section deals with the responses that were collected after the initial session that covered Step 1a (Establish Type of Community from Flowchart) and Step 1b (Verify Online Community Template is Applicable). Section 6.3.2 will cover the responses from the participants at the end of the process.

The feedback captured after Step 1b was very positive, despite a concern that the length of the initial session would produce a negative effect. Comments to support a continuation of the work included "...it is going in the right direction..." and "...it seems that your work could be very relevant to TWI as we develop our Faradays into KTNs (Knowledge Transfer Networks), and it may have a wider significance." Some specific areas that are of note are bullet pointed below:

- Community Selection – there is a need for guidelines to determine which community should be selected for the pilot study, as highlighted by comments such as "...I guess the main challenge we had was in locating an appropriate network as a subject for study...". One consequences of not identifying the Online Community space before the first session was that a large proportion of time was spent discussing which community should be chosen and why. Secondly, since the Online Community had not been identified prior to this session it was impossible to ensure that appropriate stakeholders were present.



- **Supporting Material** – this was generally considered to be “...all very clear”., therefore validating that it was fit for purpose and relevant. However, there was a problem in that the participants identified the EPPIC Community as 3 different community types depending on the perspective adopted.
- **Evaluation Process** - the participants found the method beneficial and remarked “the process itself is rigorous and logical”. However there were 3 other areas to note. Firstly, the map did not capture stakeholder groups; instead it often drilled down to the actual stakeholder names. Secondly, when viewing the contribution and satisfaction of the stakeholders there was some discussion as to whether this related to the individual person or the organisation that they represented. Finally the group were keen to reuse existing measures where possible. Although this is to be commended, care must be taken to ensure that the measures actually represent the specific areas that have been identified as important to the Online Community meeting its objective.

### **6.3.2 Observations after Evaluation Completed – Steps 2-4**

The comments received at the end of the evaluation were mostly positive although there were some disappointing issues. The biggest benefit was that the team felt that the method could be applied to other Knowledge Transfer Networks. There was also a view that the structured approach could be used to develop questionnaires to evaluate the organisation’s performance in other non-Online Community areas.

The main frustration was that the team was unwilling to act upon the measures. The argument was made that the response rate to the survey was so low that it would be inappropriate to act on the basis of it. However, the team had the opportunity to collect hard data associated with each of these measures. It was unclear if this data had been collected and if so whether any actions were taken as a result.

A second disappointment was that the team decided not to complete the final step in the evaluation method and thus formalise the process. This was due to the maturity of the EPPIC Faraday Partnership and the prioritisation of resources. Although it was decided to stop the evaluation of the EPPIC Faraday Partnership this was not a reflection of a poor regard for the method. Indeed the statement was made that other knowledge transfer networks would benefit from this approach.



Some specific areas for development and improvement are noted below:

- Results Report - the team were disappointed that the results had merely been collated and that there was no initial interpretation in the Results Report. This was a conscious decision to allow the evaluation team to draw their own conclusions from the raw data. On reflection it was acknowledged that to present the results in a more visual format may be beneficial. One possible option is to generate a chart that plots importance against performance (Figure 29). This would clearly show priority areas for action. For example if the collated results showed that a specific measure scored 4 in terms of importance and 2 in terms of performance it would lie in the bottom right hand corner of the grid. Any measure that falls within this quadrant is a priority and action should be taken to resolve the performance issues related to this specific measure. Each measure would be plotted on the chart in a similar manner.

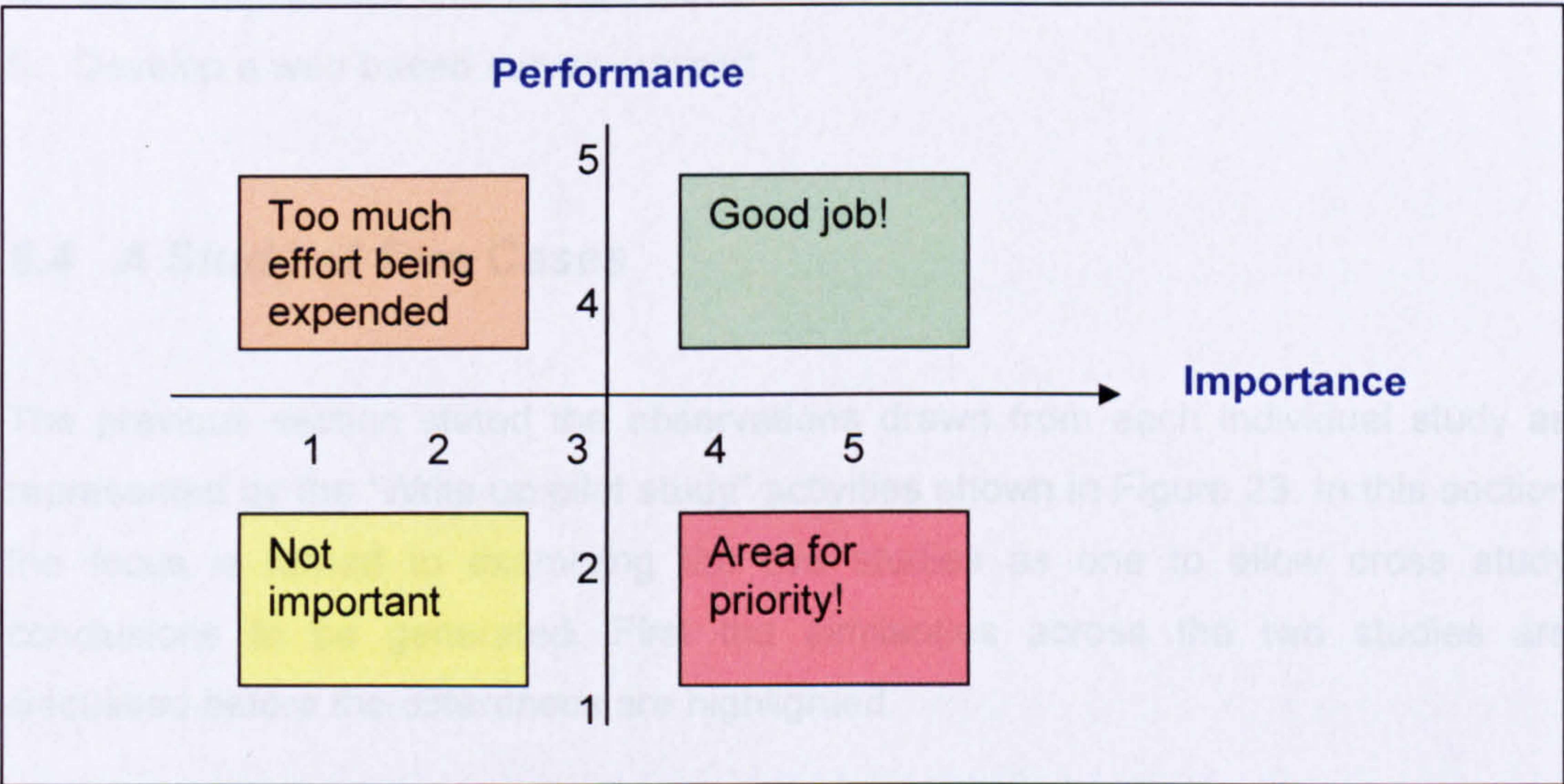


Figure 29: Results Grid

- Questionnaire Template – this was originally designed for a paper-based questionnaire, as it was believed that greater participation would be achieved from non-Internet savvy stakeholders. However in this pilot study TWI did not have the postal addresses to send out the questionnaire via mail, so a Microsoft Word based form was employed and sent by email. This was a little clumsy so it is recommended that a web based survey tool needs to be added to the supporting material, to be used in such circumstances.



- Evaluation Process – attracted positive comments such as “..very useful due to scope and wording of the questions”. Due to the low response rate it was agreed that it would be inappropriate to make changes based on so few responses but the results were to be used to engender discussion at the next Partnership meeting.

### **6.3.3 Amendments to the Evaluation Method**

In response to the comments captured during the TWI pilot study the following key amendments to the evaluation process have been suggested:

1. Provide guidance on the selection of the Online Community for evaluation
2. Add a step to the documented process where the hard data collected is reviewed
3. Examine the importance results before performance results
4. Utilise the Results Grid to aid initial analysis
5. Develop a web based survey support

## **6.4 A Study of Two Cases**

The previous section stated the observations drawn from each individual study as represented by the “Write up pilot study” activities shown in Figure 23. In this section the focus is turned to examining the two studies as one to allow cross study conclusions to be generated. First the similarities across the two studies are discussed before the differences are highlighted.

### **6.4.1 Similarities between the Two Studies**

There are 6 key similarities between the two studies:

- A positive response was given to the measures developed
- A rigorous process employed
- Key outputs were generated
- There was a failure to complete all 4 steps within method
- Measures were not acted upon



- There was no attempt to measure the “community” aspect

Both evaluation teams were very positive about the measures that were created as a result of using the method. They stated that the method and use of the supporting material was rigorous and that it produced measures that were of value to them.

Each team also managed to produce a number of key outputs. Firstly they created an Online Community Map showing their common understanding of their specific community. Secondly they formed a set of fully defined measures which is contained within their Measures Definition Report, stating what was to be measured, how this was to be done and what actions would result from the measures if they hit or failed to hit target. Finally both evaluation teams generated a questionnaire based on the measures that they believed would capture responses from stakeholders to allow them to manage and develop their Online Communities.

Unfortunately neither pilot study completed the full 4 steps involved in the evaluation method, although each had different reasons. AIM took a decision to protect their emerging relationship with their stakeholders. They felt that in the previous few months their stakeholders had been inundated with requests for feedback and comments, and that to send out another questionnaire would be detrimental to their ongoing relationships.

In contrast, TWI progressed beyond this stage and collected opinions from their stakeholders. However they decided that due to the maturity of the Online Community it would be unlikely that there would be time to reissue the questionnaire before the end of its funded period and therefore there would be no need to formalise the evaluation process for the EPPIC Faraday Partnership.

The most disappointing aspect of the study was that both teams failed to act upon the measures. Despite assigning considerable time to fully define each measure, how to collect the data and why it was needed, there was no drive to actually conduct this activity. The evaluation teams' willingness to commit resources to defining the measures suggests that they have a high level of interest but cultural issues seem to be inhibiting them from collecting and acting upon the data.

This does not appear to be an isolated finding within Performance Measurement research. However, it does suggest that there needs to be a two-pronged approach



to developing and implementing the performance measurement system. Whilst this activity is conducted some attention needs to be turned to encouraging culture change, where data collection and subsequent action is considered the norm.

Although both organisations viewed their web space as a place for Online Community, as mentioned previously, there was no real attempt made to include any measures relating to social capital, learning or interactions. The focus was very much on the outputs related to the “hard” aspects of the community such as information presented or documents lodged. The managers expressed no metrics that would help to understand if relationships were being built or maintained through their community space.

#### **6.4.2 Differences between the Two Studies**

Although the previous section highlighted that there were several similarities within the studies, there were also many differences. The 7 key ones are:

- Time taken to complete the implementation
- Level of reuse of existing measures
- The size of the Online Community element
- Occurrence of reporting measures
- Ease of community selection
- Ease of class selection from flowchart
- Ability to deal with high level ideas

The time taken to complete the TWI implementation was longer than that with AIM, even accounting for the fact that AIM only completed the first 4 steps. This is a concern as the measures are generated from the Online Community Map that represents the community at that point in time. If there is too large a gap between creating the map and the measures it is possible that the situation may change in between, rendering the measures inappropriate or misaligned.

The second and third differences observed may be as a result of the disparity in the two communities studied. In the first case the variation in maturity of the two Online Communities appeared to lead to a difference in the number of measures reused.



The Competitiveness Fellows' Sub Community was in its inception therefore had had little opportunity to reuse existing measures as these were not available.

In contrast the EPPIC Faraday Partnership had been running for a number of years and therefore had the option to reuse existing measure, thus allowing for continuity and efficient reuse of resources. Good practice dictates that the measures should be reused where possible. However, care must be taken to ensure that stakeholder contribution/satisfaction areas are not reworded to suit the existing measures, rather than the measures being derived from these areas.

The size of the online element was also different between the communities with AIM striving for a much higher proportion of the relationships being forged and supported through the Internet.

TWI had a large number of "reporting" measures that provide information back to their funding bodies but did not actually affect the day-to-day running of their community. It seemed that the management of the EPPIC Faraday Partnership was quite centralised with decisions being taken at the Steering Group level or higher rather than at the community management level. The obvious concern is that this is consuming resources from the Online Community management without providing them with data to support decision-making. There is also the lost opportunity for the Online Community managers to react rapidly to meet the emerging needs of their members and to engage directly with other stakeholders.

The fourth point was the ease of selection by the organisation of the Online Community to study. Although both organisations opted for the Online Community space they felt would provide the greatest learning it was for different reasons. AIM picked the one with the greatest complexity and it directly addressed one of their organisational objectives. This suggests that they were using the pilot study to ascertain whether they were meeting their objectives.

In contrast TWI picked a mature community that mirrored many of their other communities and that was clearly bounded. This suggests that they primarily wanted to test the method rather than determine if they were meeting their objectives. With this background it is not clear why TWI had more issues trying to select the community for participation.



Based on the flowchart, the AIM evaluation team immediately reached the same conclusion whereas the TWI evaluation team did not, and conceded that the EPPIC Faraday Partnership could be described as any of 3 community types. This raised a concern that the flowchart did not properly assist the team in their task. However, as mentioned previously there is a possibility that the TWI evaluation team were not all fully conversant with the aims and objectives of the EPPIC Faraday Partnership since many of them were not actually involved. Further testing needs to be conducted to determine whether this lack of familiarity is the cause or if the issue lies with the actual flowchart.

Finally, the AIM evaluation team seemed more comfortable working with high level abstract ideas, in contrast with the TWI evaluation team who appeared to work at a more practical level. This difference could be generated by the different focus of the organisations, for instance theoretical research versus day-to-day business development. This was demonstrated by the TWI evaluation team breaking down the stakeholder groups into an organisational level in some cases e.g. investors was broken down into TWI, DTI and Industry Steering Group. The main question being whether the needs and wants of these groups are substantially different. This can only be refuted or supported by the importance ratings attributed in the completed questionnaires.

## ***6.5 Missed Opportunities in the Studies***

With hindsight it is possible to see that a critical element has been missed from the Online Community Templates. Originally it was anticipated that the Evaluation Team would, as part of Step 1a, identify some measures related to the “health” of the Online Community. However, in the two studies it became apparent that this was not going to happen without prompting. There needs to be one aspect of the measures that differentiates Online Communities from simple online information services (Lee, Vogel et al., 2003). For this reason it was decided to give more focus to this aspect by adding a new branch to each template. This would ensure that measures examining the “health” of the Online Community have to be discussed.

Although it is recognised that every Online Community is different and therefore should not be subject to the same evaluation criteria (Baym, 1998) it is possible to



outline broad areas of community “health” that must be considered when developing the metrics. These areas are:

- Interactions
- Collaboration and Learning
- Social Capital
- Maturity

Each of these will be discussed in turn in the following sections.

### **6.5.1 Interaction**

Raisch (2001) and Lawrence (1995) both make reference to the need for communication facilitation or sustained interaction to support a successful community. The logic being that more time engaged in communicating the more likely member will be to develop relationships and ultimately a commitment to the Online Community (Rowley, 2002).

At the most simplistic level interaction can be measured using the metrics obtained from the server such as:

- Posting per day/week/month (Cothrel, 2000) where a higher number may be more desirable though questions on quality of postings can arise.
- Read to post ratio (Cothrel, 2000) which provides an indication of whether the member is on the periphery or the core of the Community.
- Poster to post ratio (Smith, 1999) where concern can be raised if it is either too high or low as this would suggest a lack of interaction between participants.

To provide a slightly more sophisticated view Potts (2005) suggests noting the messages which refer to at least two previous postings as a sign of interaction. Thus preventing bias due to a series of unconnected and unanswered posts.

Another consideration level of elegance that can be added to the metric is the type of posting. Does it contain a social element such as expressing gratitude (Potts, 2005) or does it have personal content that supports the relationship (Boneva and Kraut, 2002)? Or is it simply a co-ordination message to support the fulfilment of a task?



Based on the earlier levels of communication described by Walther (1996) how would the messages be distributed across the impersonal, interpersonal and hyperpersonal categories?

It has been suggested that technical limitation of the Internet hinder communication so Parks and Floyd (1996) suggest overcoming this through the use of additional channels. This raises the need for a metric that captures the number and type of additional channels.

By focusing on interaction, the hope is to gain some measure of relationship within the Online Community. Parks and Floyd (1996) suggest in their research that relationships deepen as there is an increase in the breadth and depth of interaction. They also see the convergence of the member's social network as further evidence of the increasing level of relationship. This concept is echoed by Seed (1990) who terms this the network density, a familiar concept in Social Network Analysis (Scott, 1991) but in this case the challenge is to apply this across the membership rather than focusing on an individual perspective.

It is clear that interaction provides a tie between the members regardless of whether the Online Community is work or social focused. These ties can be strong but in many cases are more likely to be weak which may actually be healthier in some types of community. People have less strong ties than weak ones which would limit the community size to a mere handful. There is also a suggestion that we learn and gain support from interactions we have with people with which our ties are weak (Wellman and Gulia, 1999; Kobayashi, Ikeda et al., 2006). Haythornthwaite and Wellman (1998) suggest two types of tie – friendship and work. In their research they look towards the multiplexity of these ties to determine the strength of the relationship.

A further option for examining the interaction, and thus having an understanding of the relationships within the Online Community would be to adapt the Quality of Relationships Inventory. This was developed to assess an individual's perspective of the level of support offered, depth of commitment and conflict provided by another individual (Pierce, Sarason et al., 1991). It has been utilised in connection with Online Communities for cancer support so it already has some provenance in applications to an entity that is not a human individual (Turner, Grube et al., 2001).



Inadequate interaction may be one reason why an Online Community may not evolve (Baym, 1998).

6.5.2 Collaboration and Learning

At all times when a member is participating in a community they are learning even at the base level of how to “be social” and conform to the etiquette of that group. However, many Online Communities exist with some motive to provide subject learning or collaboration. As before interaction is an important area to consider but in terms of seeking agreement on issues of meaning or providing critical evaluation of other’s contributions (Palloff and Pratt, 1999). It is important to verify that the members are learning from each other (Peters, 1992) whether or not the member all come from the same organisation.

Peltier et al (2003) provide a model (Figure 30) for education effectiveness that could readily be used where the community was an Online Learning Community.

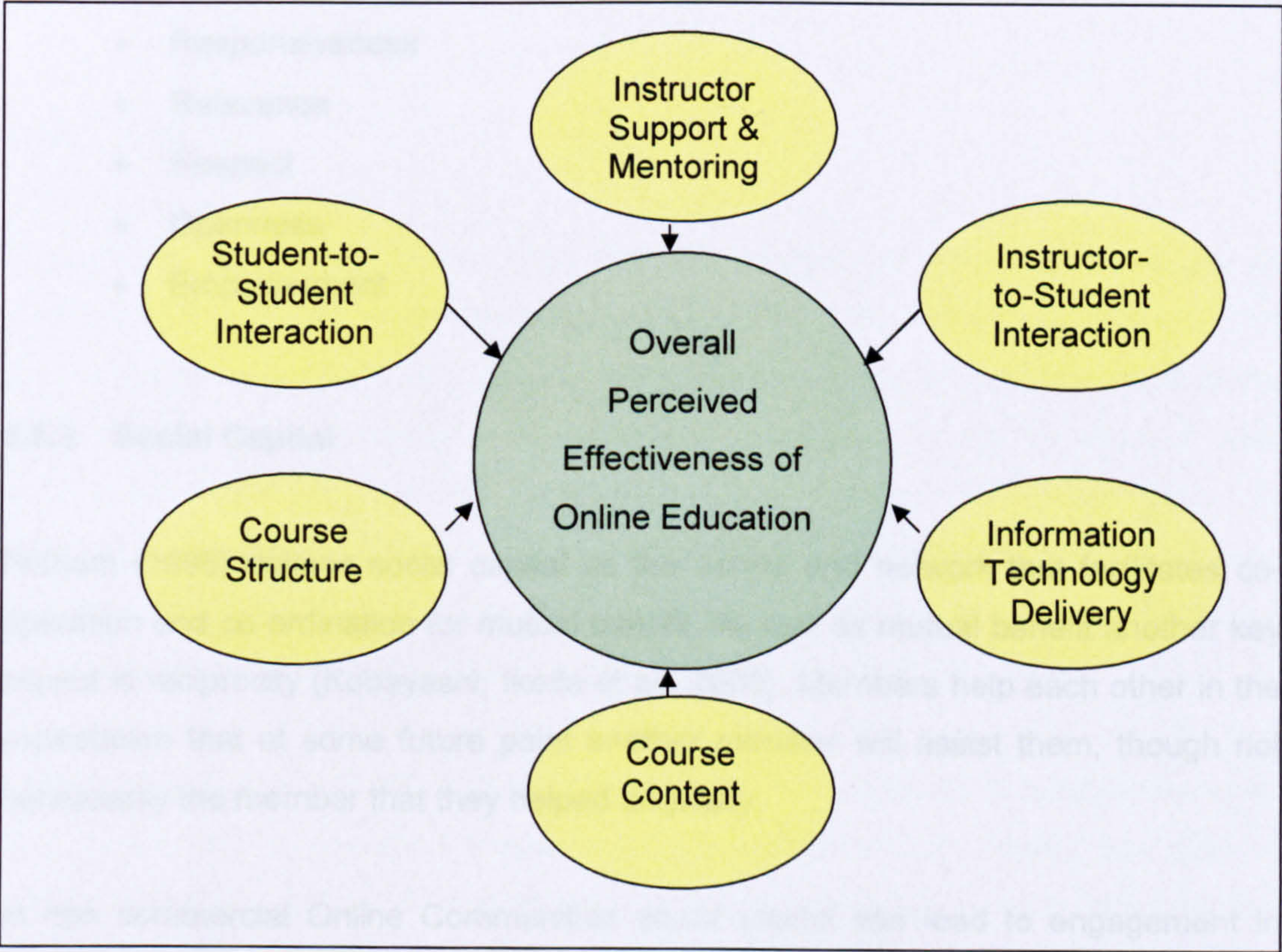


Figure 30: Online Education Model



They also provide a list of potential metrics that could be utilized to assess this area of focus.

For collaboration to occur online, apart from the technological considerations there are some other conditions that need to exist (Logan and Stokes, 2004). The most fundamental of which is trust. Butler (2002) suggests that there are 3 types of trust:

- Thick – embedded in personal relationships that are strong, frequent, and nested in wider networks. Small radius and aligns with the idea of strong ties.
- Thin – rests on a background of shared social networks and expectations of reciprocity. Large radius and is associated with weak ties.
- Transitive – A trusts C because A trusts B and B trusts C.

Developing this theme further Palloff and Pratt (1999) suggest that there are 6 keys to creating a successful learning community:

- Honesty
- Responsiveness
- Relevance
- Respect
- Openness
- Empowerment

### **6.5.3 Social Capital**

Putnam (1995) defines social capital as the norms and network that facilitates co-operation and co-ordination for mutual benefit. As well as mutual benefit another key aspect is reciprocity (Kobayashi, Ikeda et al., 2006). Members help each other in the expectation that at some future point another member will assist them, though not necessarily the member that they helped originally.

In non commercial Online Communities social capital can lead to engagement in voluntary and political activities or to support social contact with family and friends (Quan-Haase, Wellman et al., 2002). It can also engender a “sense of community”



where people feel a “belonging” and a responsibility toward the community. Chen et al (2002) provide a list of 6 statement that they used in a study to determine the “sense of community” felt by individuals around different parts of the world.

Along with the norms that evolve as an Online Community develops there are also a set of typical roles that are associated with this growth. Palloff and Pratt (1999) suggest that these roles provide evidence that an information space has evolved into a community. The roles are:

- participants who attempt to keep things moving when the conversation lags
- participants who attempt to mediate conflict
- participants who look for other members when they have not been present in the discussion for a few days

Many authors comment that these sociability components are essential to the existence of a community (Cohen, 1985; Preece, 2000). For this reason they are a key measure that should be considered to provide an indicator of the “health” of the Online Community.

#### **6.5.4 Maturity**

It would be unfair to expect an Online Community space to magically evolve into an Online Community within minutes of its conception. Building community takes time as the relationships and social capital develop over a series of member interactions. From a technology perspective different tools or platforms may be more or less appropriate depending on the level of maturity (White, 2003) and thus the relationship and communication needs. Therefore some cognisance must be taken of the maturity of the Online Community, not necessarily in terms of day since formation more in a sense of how developed the interactions are within the space.

Hagel and Armstrong (1997) looks at this from a purely commercial perspective when they suggest that there are 4 stages of member development. Initially they seek to attract members before promoting their participation. They then state that this participation in the activities of the Online Community such as content contribution or interactions with other members will build loyalty. Ultimately they look to convert this



loyalty into some form of value for the business that provides the Online Community space.

Rainey (2001) instead looks at this from the perspective of building a network external to an organisation but it is surely applicable to one within a single organisation. She suggests that there are 3 phases in development of a professional network. First it acts as an information point which can be used as a source of information. Then as participation is encouraged, interaction develops between the information provider and individual members. Ultimately the network looks for collaboration where multiple interactions are taking place.

#### **6.5.5 A Solution to Examine Community “Health”**

Looking back on the work conducted with the pilot studies, an opportunity was missed to explicitly investigate the community side of the Online Community. Through the template method, the managers were guided to consider the main objectives that the Online Community had been created to satisfy and the stakeholders. However, there was no clear guidance that for a mature Online Community to exist there would need to be some space and tools devoted to supporting relationships, whether these were weak ties associated with work tasks and activities or a small number of stronger ties.

Simple measures such as those mentioned in Section 6.5.1 relating to the level and intensity of interactions would have been worthy of an initial attempt to provide some insight in whether relationships were being formed or maintained.

There was also potential to look at how much learning was occurring in the community rather than just counting the number of documents submitted, although this could be counted as a first step in trying to capture the amount of knowledge that was being shared. However, it gives no indication of whether members visiting were learning from these documents or using the contents in their own situations.

Since no focus was placed on interactions, it was impossible to see norms and shared values being put forward within the community space rather than the members just accepting the ones initially stated by the owners/managers. This suggests a lack of evolution within the community space and hints that perhaps the



members were not involved on a voluntary basis instead it was seen as part of their remit. Although within the AIM community there is the possibility that these norms and the concept of reciprocity was in place due to the face-to-face events there was no way to capture this social capital.

A major failing of the studies was that in both pilot studies, the evaluation team comprised of the managers of the online space only. There was no representation from community members or even from the investor group as such. This may have been the reason behind the focus on the “hard” outputs of the ventures as the team were keen to produce measure that related directly back to the stated aims – and these did not include fostering community although this could have ultimately contributed to the quality and quantity of the “hard” outcomes,

## **6.6 *Implications of Research***

Through the testing of the evaluation method 8 main conclusions were drawn and these are discussed fully in Submission 7, Testing an Online Community Evaluation Method: A study of two cases (McArdle, 2005). This section seeks to present the 4 key conclusions with regard to the research project.

### **6.6.1 Evaluation Method Partially Meets Requirements**

The original requirements for the research identified 4 requirements that needed to be addressed when generating the method:

- It must be simple to implement with minimum use of already limited resources
- It must be flexible to allow customisation to suit the needs of the Online Community that is under study
- It should allow action to be taken to improve the day-to-day management of the Online Community
- The measures collected must help answer business questions

The efficient use of small teams and pre-meeting supporting material demonstrated the low use of resources in the study. By applying the evaluation method in two



different domains (management research and engineering) flexibility was also proven. Although recognition is given that the team make up was not satisfactory.

The evaluation method provided a roadmap for the evaluation teams that emphasises that they need to consider the stakeholders first and then consider the areas in which there is a need to monitor their satisfaction and contribution. Only at this stage is it possible to introduce measures to coincide with these areas. This means that there is a direct link back to meeting objectives and answering business questions. However, additional emphasis needs to be given to the community and relationship aspects to maximise the output that can be achieved in terms of knowledge sharing and learning across the members.

**The studies have shown that the evaluation method partially meets the 4 requirements originally identified.**

#### **6.6.2 Online Community Performance can be Viewed on Multiple Levels**

By using the structured approach necessitated by the evaluation method, it is possible to direct the measures of the specific Online Community towards their unique circumstances. For example within AIM it was deemed important that users contributed working documents, as this was related to disseminating knowledge to industry and academia, so a measure was created to capture this.

In the TWI study, one of the important contributions from the users was the provision of equipment and facilities, providing interaction within the membership and supporting projects, and by increasing this it helps them move closer to their objectives.

**The performance of Online Communities can be considered on multiple levels, taking account of whatever aspects are most important to that specific circumstance e.g. financial, problem solving, knowledge sharing.**



### **6.6.3 It is Possible to Engage Stakeholders in a Dialogue**

Completed questionnaires were received from EPPIC Faraday stakeholders and they provided their opinions on the current performance. However, in addition to this a number of respondents included comments in the free text area of the questionnaire, indicating a willingness to engage in dialogue as to the direction of the community, rather than just ranking what has been done to date.

**By using a simple questionnaire it is possible to engage stakeholders in a dialogue as to their opinion of the Online Community's performance and where they believe it could be improved/developed.**

### **6.6.4 Team Needs to Act on Measures Not Just Define Them**

From the investment in time made by both organisations it appeared that they realised the potential that measures have to help them with decision making. However, the evaluation teams failed to collect the hard data associated with the measures and therefore did not conduct the actions that they believed should result from missing/hitting certain measure targets. This suggests that there is some unidentified barrier preventing implementation of the performance measurement system.

**It is not enough to get the team to realise that measures are required to assist in the running community and to invest time in fully defining these measures. There needs to be something more that will motivate them to actually implement the data collection for the measures and act upon it this data.**

The four points above tend to highlight the weaknesses in the original evaluation method and the testing in the pilot studies. However, there has been an opportunity for additional literature based work to be undertaken. This has resulted in a more robust proposed evaluation method which could be readily tested if a more searching pilot study plan was developed.



## **6.7 Research Issues**

There are 3 main areas to consider with regard to the research that require further discussion. Firstly the key position of the evaluation leader needs to be examined, as their activities are central to the evaluation method. Secondly, it is prudent to reflect on the extent of the development of the evaluation method, highlighting areas still to be completed. Finally it is necessary to set the boundaries to the scope of application.

### **6.7.1 Evaluation Leader**

The role of the evaluation leader is pivotal to the success of the method application. This person needs not only to complete certain administrative activities such as issuing the questionnaire and compiling the results, but also to keep driving the process forward. Without a clear schedule from the evaluation leader and constant reminders of the tasks that have been allocated it is too easy for team members to place the evaluation on the “backburner”.

For this reason it is desirable that the person selected for this role has strong organisational skills, determination and also good attention to detail. However, it is possible to allocate some of the more detailed tasks to other members of the team if the evaluation leader still maintains an overview and control of the process.

### **6.7.2 Extent of Development**

Although every attempt has been made to complete the project within the defined timescale there are a number of issues that have remained outstanding.

In section 5.3.2.2 the comment was made that the use of Online Community templates may lead to a “blinkered” approach. This is where the evaluation team relies solely on the templates instead of using them as an aid to recognising their own situation. Although the belief of the researcher is that the risk of this blinkered approach occurring is small, this has not been quantified or validated.



Another aspect that has been suggested for inclusion but was not tested was the addition of a community “health” branch to the template (section 6.5.5). This would force the evaluation team to actively consider the various points such as interactions, development of shared values and reciprocity, ensuring that they decide how important it was in their situation rather than overlook it.

In conducting the research it was not possible to explore the financial benefits of adopting the Online Community evaluation method and this is a priority for any development work following on from this project. Section 7.2.1 outlines one way in which this work could be undertaken.

One significant issue that emerged from the project was that the evaluation team, although appearing to recognise the need for data driven decision-making, failed to collect hard data and act upon it. This is a major area that needs further study to determine what inhibits the data collection and subsequent actions. It cannot be lack of awareness alone as the evaluation team was suitable engaged to fully define the measures to be collected, not an inconsiderable task. Section 7.2.4 provides some suggestions on how this work could be approached.

### **6.7.3 Scope of application**

The pilot studies covered two different fields of application. Initially the pilot was conducted in a management research organisation and received positive feedback. A second pilot was undertaken in an engineering organisation. The comments from the evaluation team in this situation were also positive. However, despite positive feedback no actions were taken in either case so there is not enough evidence to suggest that the evaluation method can be successfully applied within these domains.

Further work needs to be taken with a broader range of organisations to confirm the method’s successful application, including monitoring the “health” of the community aspect. This would also help to determine the specific characteristics that would limits it applicability.



## **6.8 Summary**

This chapter presented the investigations that were conducted on the Online Community Evaluation method. It discussed the aims of the pilot studies that comprised this and the criteria for selecting organisations to participate.

Overviews were given of both pilot studies including a description of the Online Communities. The observations made during the studies and the changes resulting from these were briefly discussed, before the similarities between the pilot studies were identified. Most notably among these were the generation of key outputs and the failure to consider measures relating to the “health” of the community. However, there were also differences including the time taken to complete the implementation and the size of the Online Community element.

The 4 key conclusions from the study were presented, the most important of which stated that the studies have shown that the evaluation method created partially meets the 4 requirements originally identified. It was also recognised that an opportunity had arisen that allowed for the refinement of the original evaluation method. Taking this opportunity a more robust method was identified.

Finally, thought was given to the outstanding issues that were not possible to address within the confines of the project. Consideration was also given to the applicability of the Online Community evaluation method.



## **7 Future Work**

### **7.1 Introduction**

This chapter outlines possible directions for development of the existing project and also suggests areas for future research.

Specifically this chapter will:

- Discuss development opportunities to enhance the evaluation method for Online Communities by:
  - Testing the community “health” branch that has been proposed for addition to all of the Online Community templates
  - Exploring the financial benefits associated with use of the evaluation method
  - Validating the causal models that are developed during the application of the method
  - Examining the factors that prevent an evaluation team from collecting and acting upon hard data despite their willingness to use it to manage their community
- Suggest research areas that will broaden the research focus such as:
  - Studying the stakeholder experience through the experiential construct known as Flow
  - Considering how an evaluation method can be used within an organisation to compare multiple Online Communities

### **7.2 Development Work**

The first areas for consideration are extensions of the original research project, which seek to increase the robustness of the method. These focus directly on 3 areas that have been identified as opportunities for further research and one area that requires testing.



### 7.2.1 Testing the community “health” branch

The literature has suggested that there is a difference between information service providers and true Online Communities. On reflection it would appear that the “Online Communities” recruited for the study did not possess the desire to explore their performance in terms of the social aspects that form the foundation of community relationships. Instead their focus was very much on the “hard” outputs relating to stakeholder satisfaction, contribution and the objectives that the community space should meet.

It is anticipated that development of the community would enable better performance in meeting some of these objectives. For this reason it has been proposed that all Online Community evaluation teams should be guided to consider the social aspects of community. It is hoped to achieve this through the addition of a community “health” branch to all the Online Community Templates.

As this concept was developed after testing of the evaluation method it was not possible to gather evidence to support the use of this branch. However, to provide a robust evaluation method that takes account of relationships within the Online Community it is recommended that further trials are undertaken and specific feedback is gathered on this aspect. This work would address the following question:

**“Does the community “health” branch provide insights into the relationships within the Online Community and assist in achieving higher performance in terms of its specific goals?”**

In order to answer this question the first challenge is to locate some Online Communities that are interested in examining their relationships and how they can be used to satisfy the overall objectives rather than focusing on the Online Community space. Then through using the modified templates there would be an opportunity to collect feedback on this specific aspect of the evaluation.



### **7.2.2 Exploration of Financial Benefits of Adopting the Method**

From the research conducted it was not possible to determine the financial benefits of adopting the Online Community evaluation method. With some effort it would be possible to collect the data on the costs associated with employing the method. However additional time will be needed to determine the possible returns and value them. These returns may take multiple forms including efficiency/development savings or increases in social capital (Lesser and Storck, 2001). This work would address the following question:

**“How can the financial value of adopting the Online Community evaluation method be judged?”**

It is anticipated that to answer this question there would be several objectives. Firstly to identify the type of costs and returns that is expected. Secondly to create a formula which relates each of these, taking account of the importance attributed to each by the organisation by utilising weighting factors. At this stage acceptable levels of financial return should be discussed. Thirdly the data can be collected and the calculations completed, before comparing this to the preset level of acceptable returns.

One possible risk with this study would be to capture value only from traditional areas such as cost reductions and expenditure. This would portray a pessimistic viewpoint so it is important to embrace a wider stance.

### **7.2.3 Validation of Causal Relationships**

When utilising the evaluation method, assumptions are made as to what is an appropriate measure for a certain contribution or satisfaction area. For example, within the AIM study the number of support requests was associated with user satisfaction. However, it is not known that these two are actually linked unless evidence is collected to support the relationship. At this stage they are only based on “gut-feel”. This research can be summed up in the following question:



**“How can the relationship between the measures and the stakeholder contribution/satisfaction areas be validated?”**

This is a very complex study area as it requires the researcher to find some base for the satisfaction, or contribution, that can then be compared to the results for each measure. When this step is completed statistical analysis can be used to determine if the measure is valid, and indeed, if the multiple measures adopted can significantly explain the variation in the satisfaction or contribution area.

#### **7.2.4 Inhibition Factors for Data Collection and Action**

During Step 2a of the evaluation method the teams spent a considerable amount of time fully defining each measure, utilising the Measures Definition template. In each case they were asked questions as to how the data would be collected and what action would be taken.

Despite this, both evaluation teams failed to implement any data collection so that they could take action if necessary. A greater understanding needs to be gained as to why the data collection is not being implemented, despite the realisation of the need for measures to assist decision-making. The following question seeks to develop this understanding:

**“What factors prevent the evaluation teams from implementing the data collection systems identified by the measures definition exercise and conducting any actions that are required in response to the results?”**

The main objective of this research is to identify the barriers in this specific circumstance with a view to modifying the 4-step method so that it addresses this problem. However, it is possible that the barrier is an underlying cultural issue, a significant finding that cannot be overcome without additional work across the organisation. In this case there is an opportunity to drive the culture change from the Online Community managers' evaluation needs, and the scope of the future research project should be revised to accommodate this requirement.



### **7.3 Future Research Areas**

Section 7.2 concentrates on improving and adding to the application of the 4-step evaluation method. In this section attention is turned towards new areas of research that broaden the scope of the work. One of these is concerned with understanding the experience that the stakeholders come into contact with, in the pursuit of making it more pleasurable. This in some ways is an extension of usability studies.

The second area for discussion is the evaluation of multiple Online Communities within one organisation. Both organisations that participated in the pilot studies had a number of communities to select from, so there is a clear need for them to be able to compare and benchmark internally against their other communities.

#### **7.3.1 Stakeholder Experience**

One aspect of Online Community evaluation relates to how the user interacts with the Internet tools. Nel et al (1999) conducted a study on commercial web sites to determine whether Csikszentmihalyi's Theory of Flow (Csikszentmihalyi, 1992) could be used to determine good commercial web site design. The 4 dimensions of Flow that they cover in their study are:

1. Perceived control over the web site
2. The user's attention is focused on interacting with the web site
3. The web site content arouses the curiosity of the user
4. The user finds the interaction intrinsically interesting

Their conclusion was that web sites should be designed with Flow characteristics in mind. However, their work is applicable only to the user/customer. It is possible to extend this to all stakeholders involved with the Online Community, although the subtleties of the elements would need to be revised, with a view to gauging their level of Flow. By increasing the Flow for stakeholders it is proposed that it is probable that their experience of the Online Community will be optimised. This leads to the research question:



**“Can Csikzentmihalyi’s Theory of Flow (Csikszentmihalyi, 1992) be used to enhance the Online Community experience of stakeholders, resulting in higher engagement levels and performance?”**

The initial task would be to define the 4 critical Flow elements in the context of each stakeholder group. Then an experiment would need to be constructed to identify characteristics that point to each of these elements, relating them to levels of enjoyment/engagement by the stakeholders. Statistical analysis could then be employed to determine the association between these elements and engagement/enjoyment.

### **7.3.2 Evaluation across Multiple Communities**

As was mentioned in the introduction to this section, both organisations that took part in the pilot studies had multiple communities from which to select. This suggests a need to have a means to evaluate the communities against each other in terms of priorities and resources.

Typically the different Online Communities may vie for the same technical people or hardware regardless of their objectives. Therefore the organisational management needs a way to allocate these based on need, performance and return. If all the Online Communities were of a similar type with similar objectives, the simplest solution would be a direct comparison of the results with some form of weighting applied to the one which management deemed most important. However, this is unlikely to be the case, so there is a need to consider Online Communities, with different stakeholders and therefore measures. This suggests the following question:

**“How can multiple Online Communities within a single organisation, but with different objectives and priorities, be compared, if at all?”**

One possible approach to this question is to consider a single organisation, with multiple Online Communities. The measures derived from these communities could then be examined to determine any areas of commonality. From this a high level evaluation approach could be developed. This high level approach would then need to be trialled with other organisations to determine if it was company specific or if it was generic enough to be applied across industries.



Another approach would be to regard this as a generic question that affects more than just Online Communities. In this case it is possible that existing techniques for funding comparisons could be applied, either in their entirety or by utilising relevant aspects.

## **7.4 Summary**

This chapter has suggested a number of possible directions for development of the existing project and also areas for future research. In doing so it has posed 6 specific questions:

1. Does the community “health” branch provide insights into the relationships within the Online Community and assist in achieving higher performance in terms of its specific goals?
2. How can the financial value of adopting the Online Community evaluation method be judged?
3. How can the relationship between the measures and the stakeholder contribution/satisfaction areas be validated?”
4. What factors prevent the evaluation teams from implementing the data collection systems identified by the measures definition exercise and conducting any actions that are required in response to the results?”
5. Can Csikzentmihalyi’s Theory of Flow be used to enhance the Online Community experience of stakeholders, resulting in higher engagement levels and performance?
6. How can multiple Online Communities within a single organisation, but with different objectives and priorities, be compared, if at all?



## 8 Conclusion

There is a business need to evaluate Online Communities if organisations that adopt them are to gain best value for money. Although there are a number of current evaluation methods, these are often time consuming to implement or too simplistic to provide answers to organisational questions. Through this research project it has been partially shown that an evaluation method with supporting material can assist Online Community managers to evaluate their own community performance in a manner that is appropriate to their own circumstances. However, it was also demonstrated in both studies that without specific guidance, measures relating to the social and relationship aspects of the Online Community were not considered by the evaluation teams.

The main achievement of the research project is that a 4-step evaluation method has been created, which provides insights that help in the day-to-day running of the community. This method uses novel supporting material to ensure that the evaluation of Online Communities can be conducted in a resource efficient manner. This supporting material was updated after testing to include specific references to the relationship aspects of the Online Community under study and therefore cover a gap in the evaluation method.

As a precursor to creating the 4-step method to evaluate Online Communities, literature was reviewed to gain an understanding of what “Online Community” means. Based on this the specific definition below was used throughout the project to ensure consistency of focus:

**“An Online, or Virtual, Community is a social or business space, supported by technology and Internet tools, in which people with common interests, objectives or values can meet and satisfy their needs.”**

As well as this definition, a classification of Online Communities was produced, after a review of existing literature suggested that there were no suitable classifications in existence. The role of this classification was to simplify the evaluation and to allow the 4-step evaluation method to be applied in the minimum time frame. The



classification which is based on interviews with Online Community participants and literature consists of 4 classes with the defining characteristic being the main objective that they were set up to address:

- Community of Transaction – increase efficiency of trading
- Community of Interest – provide a meeting space for people with a shared interest
- Community of Practice – develop the field of interest and share best practice
- Community of Exploration – explore and develop new areas of knowledge

The method for evaluating Online Communities was then tested with two organisations in a sequential manner. Each of these studies provided insights into using the method and generated feedback to increase its robustness. Comparisons were made across the studies and several similarities noted including the generation of key outputs, a lack of relationship based measures and the failure to act upon the measure developed. In a similar vein the differences across the study were also summarised including the time taken to complete the implementation, the size of the Online Community element and the ease of community selection.

As a result of the research, 4 important conclusions were drawn:

1. The studies have shown that the evaluation method created partially meets the 4 requirements originally identified.
2. The performance of Online Communities can be considered on multiple levels, taking account of whatever aspects are most important to that specific circumstance e.g. financial, problem solving, knowledge sharing.
3. By using a simple questionnaire it is possible to engage stakeholders in a dialogue as to their opinion of the Online Community's performance and where they believe it could be improved/developed.
4. It is not enough to get the team to realise that measures are required to assist in the running of the community and to invest time in fully defining these measures. There needs to be something more that will motivate them to actually implement the data collection for the measures and act upon this data.

In practice this research has delivered a new evaluation method that means that Online Community owners and managers can enter into dialogue with their



stakeholders. This will assist them make decisions such as those posed in Chapter 1 (section 1.1).

For example, in the case of an Online Community that has been established to promote online sales, it would be foolish to focus solely on the number of visitors to the site only or even transactions. Dialogue with investors may indicate that transactions are one key area, although they are more concerned about repeat transactions and growing customer loyalty.

Consideration should then be given to measures that evaluate these aspects. However, by engaging in dialogue with stakeholders it will be possible to determine measures that focus on their satisfaction and thus encourage their loyalty. These measures should all relate back to actions that will improve the situation.

Finally areas for future work are highlighted. These focus not only on developing the current research but also on widening the scope. The main areas suggested are:

- Testing the community “health” branch proposed
- Financial evaluation of adopting the method
- Validation of the causal relationship between stakeholder areas and measures
- Factors preventing the implementation of data collection systems and the triggering of subsequent actions
- Engagement of the stakeholders using Csikzentmihalyi's Theory of Flow
- Evaluation of multiple Online Communities within a single organisation



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## Appendix A: Evaluation Process for an Online Community

Note: This document refers to the original 8-step method of evaluation that was used in the first pilot study rather than the 4-step format that is discussed in the Executive Summary. The contents of these methods are the same; it is merely the emphasis that has changed. The steps can be translated in the following manner:

4-Step Method Discussed in Executive Summary	8-Step Method used in Original Pilot Study
1a: Establish the Online Community Type	1: Establish the Online Community Type
1b: Verify Appropriate Online Community Template	2: Verify Appropriate Online Community Template
2a: Fully Define Measures 2b: Add Special Initiative Measures	3: Customise Evaluation to Support Special Initiatives and Fully Define Measures
3a: Compile Questionnaire	4: Compile Questionnaire
3b: Distribute Questionnaire	5: Distribute and Complete Questionnaire
3c: Collect Information 3d: Interpret Performance Results	6: Collate and Interpret Results on Current Performance
3c: Collect Information 3e: Interpret Importance Results	7: Review Importance Rankings From Questionnaire
4a: Review Administration Process 4b: Formalise Triggers	8: Review Process and Formalise Trigger



# The Evaluation Process for an Online Community

A Detailed Breakdown



Elizabeth McArdle

*Academic Mentor: Paul Jennings*

*Industrial Mentor: Laura Maxwell*

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## **Introduction**

In this document the actual steps involved in the evaluation process are discussed in detail, along with the reason for conducting each step and the outputs from that step. This will allow an evaluation leader to conduct the process or provide the background for readers of the pilot study report(s).

Essentially the 8-step process creates a structured format for Online Community owners or managers to determine the needs of the stakeholders and in doing so produce a list of fully defined measures. It is desirable to also include representatives if possible from other areas involved in the Online Community, for example, members or investors. This may not be possible in all cases. Therefore the questionnaire, discussed in Step 4, was introduced. This ensures that the priorities of the different groups involved in the Online Community are considered, by seeking their opinions on the importance of the different measures, as well as opinions on the performance of the Online Community with regard to the measure in question.

The individual steps are discussed in detail below:

### **Step 1 – Establish the Online Community Type**

This step is conducted to simplify the process and to create a "fast track" method of generating a set of measures for an Online Community. In order to accelerate the process a set of Online Community templates, detailing potential stakeholders and key processes have been created. This step identifies which of these maps should be used as a basis for future work.

The flowchart overleaf (Figure 1) can be used to determine the type of Online Community that has to be evaluated.

By answering the questions in the flowchart the participant will arrive at one of four community types. Details of each community type are available in a summary document (Appendix A1 – Summary of Community Types), which each participant can consult to verify that it is similar to their situation. It must be recognised that the



comments on the community type selected may not be identical to their own Online Community, however, they should be familiar enough to create the foundation for the next steps.

Flowchart to help identify the type of community for evaluation

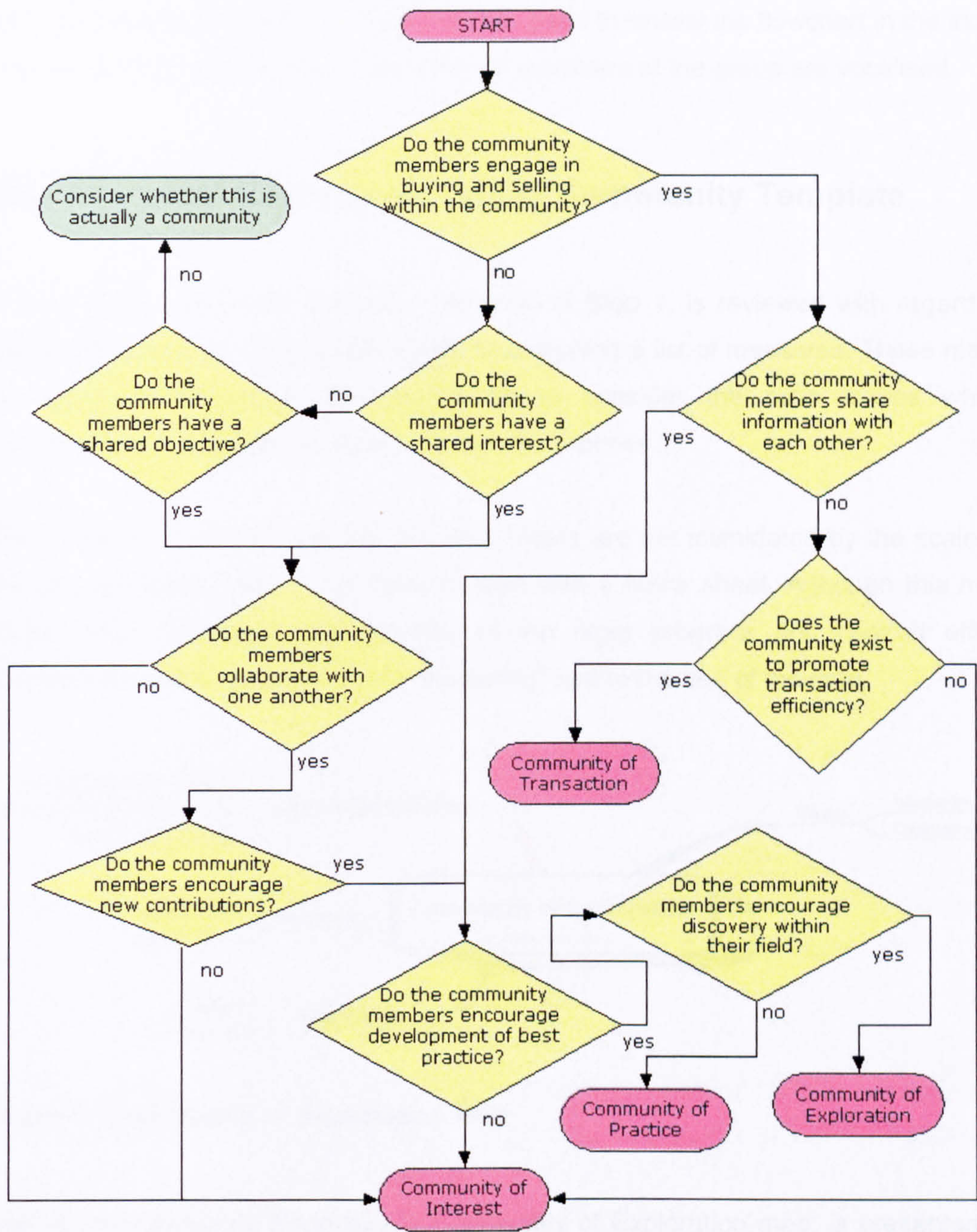


Figure 1: Flowchart to Identify Community Type

If the flowchart "ends" at the "Consider whether this is actually a community box" it will not be possible to complete the prescribed process. The community templates



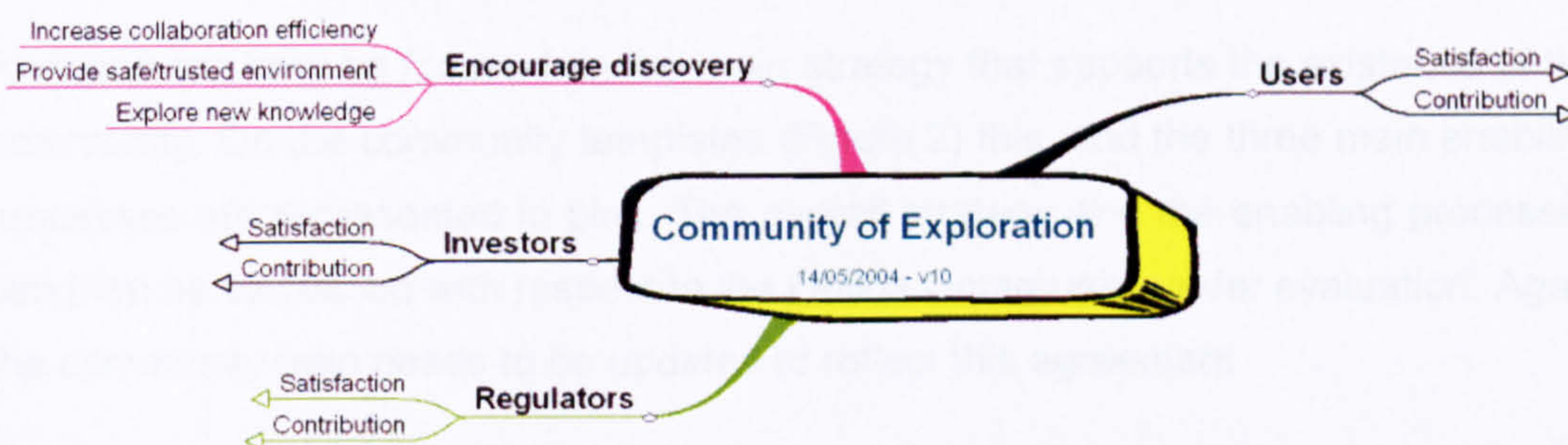
have been created to replicate certain situations and a standard web site is outwith this scope. It will be possible to complete the steps in the process but without the aid of the "fast track" material.

Participants should be provided with the flowchart prior to the initial meeting so that they can consider the options. However, it is good to review the flowchart in the initial session, so that the opinions of the different members of the group are vocalised.

## Step 2 – Verify Appropriate Online Community Template

In Step 2 the community template, identified in Step 1, is reviewed with regard to stakeholders and processes with a view to compiling a list of measures. These maps are used to encourage the participants to consider the main issues whilst simultaneously progressing rapidly through the process.

One of the major benefits is that the participants are not intimidated by the scale of the process since they do not have to start with a blank sheet. Although this may inhibit some discussion, the benefits of the rapid progress and comfort effect outweigh the disadvantages of any "blinkering" due to the use of the map.



**Figure 2: Community of Exploration Map**

One of the community templates, a Community of Exploration map, is presented in Figure 2 for reference. When reviewing the map the stakeholder groups identified in black and green are considered first, in this case the users, investors and regulators. The initial questions to be considered are:

- Are all of these stakeholder groups involved in this Online Community?



- Are there any other stakeholders involved in this Online Community?

Next, when all stakeholder groups have been identified, thought can be given to whether each of the stakeholder groups represents a homogenous mass. For example are all the investors broadly interested in the same issues? Often this will be the case, but on occasion there may be distinct and different priorities for investors. Reflect on whether a stakeholder that had invested based on social responsibility would have the same priorities as a stakeholder that was focused on investment potential. This leads to the question for each of the stakeholder categories identified:

- Is there a requirement to create sub categories within this stakeholder category?

The other aspect for review is the relative importance weighting of the stakeholders present. In the community templates (Figure 2), an important stakeholder is represented by a black line and a less important one by a green branch. The important question at this stage for each stakeholder category is:

- Is this a major or minor stakeholder?

The map can then be updated to reflect the changes in the stakeholders present and their importance within the Online Community under evaluation.

Attention can now be focused on the main strategy that supports the existence of the community. On the community templates (Figure 2) this, and the three main enabling processes are represented in pink. The overall strategy and the enabling processes can then be discussed with respect to the Online Community under evaluation. Again the community map needs to be updated to reflect this agreement.

The final stage in Step 2 is to identify the actual measures that will be implemented. This is done by revisiting each stakeholder group and examining it in terms of stakeholder satisfaction and contribution.

To aid this process four key areas of satisfaction and four key areas of contribution have been stated for each stakeholder category (Figure 3). These areas have been summed up using the terms outlined in The Performance Prism (Neely, Adams et al. 2002) as key to each of the stakeholder groups. For example, investors want Return



(capital appreciation), Rewards (dividend distribution for loyal investors), Figures (data to review progress) and Faith (confidence in the management team to deliver).

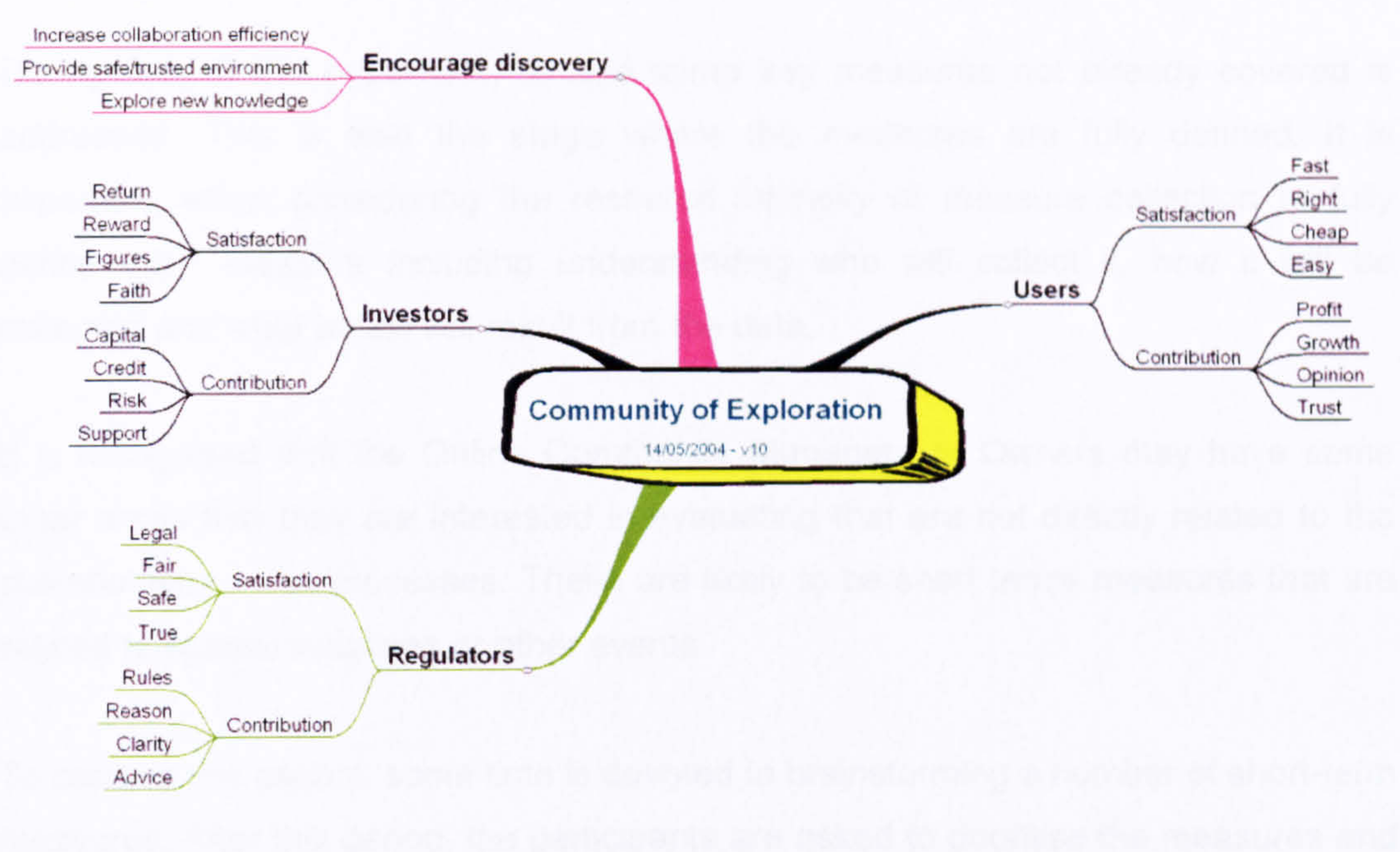


Figure 3: Community of Exploration Detail Map

In return the Online Community requires certain contributions from the investors. These are summed up as Capital (enough working capital to operate and make investments), Credit (access to adequate borrowing facilities), Risk (taken by investors in exchange for credit/capital) and Support (continued investor loyalty).

Using the keywords in Figure 3, measures relating to each of these aspects for each stakeholder category, or subcategory if these are present, can be suggested. Next the enabling processes identified are reviewed and measures that verify these are in place are and functioning correctly are added. Finally all these measures are compiled into a single list to eliminate the need to work on duplicate measures.

The outcome of this step is a compiled list of all the measures relating to each stakeholder category, sub-category or process. These measures may be attributed to more than one stakeholder.



### **Step 3 – Customise Evaluation to Support Special Initiatives and Fully Define Measures**

During Step 3 the opportunity to add some key measures not already covered is addressed. This is also the stage where the measures are fully defined. It is important, when considering the resource intensity of measure collection to fully define each measure including understanding who will collect it, how it will be collected and what action will result from the data.

It is recognised that the Online Community Managers or Owners may have some other areas that they are interested in evaluating that are not directly related to the stakeholders or the processes. These are likely to be short terms measures that are related to special initiatives or other events.

To capture this aspect, some time is devoted to brainstorming a number of short-term measures. After this period, the participants are asked to prioritise the measures and the top three are selected for inclusion in the process.

The final task in this step is to fully define the measures. This is achieved by completing the Measures Definition Template (Figure 4) for each suggested measure.

Each of the fields in the template are explained with examples in Appendix A2 – Measures Definition Template Guide. It is anticipated that some measures will be discarded at this stage due to the lack of actions resulting from them, the cost of collecting them or the lack of relationship to the Online Community business objectives.

Similarly new measures may be added at this stage. The case that a suggested measure needs to be broken down into constituent parts to allow greater understanding is not considered unlikely at this stage.

The output from this step is an Online Community Measures Definition Report. This will be a compilation of the measures definition templates that are completed during this step.



Measures Definition Template	
<u>Measure</u>	
<u>Purpose</u>	
<u>Relates to</u>	
<u>Metric/Formula</u>	
<u>Target level</u>	
<u>Frequency</u>	
<u>Source of data</u>	
<u>Who measures</u>	
<u>Who acts on the data</u>	
<u>What do they do</u>	
Notes/Comments	
Completed by	
Date	

Figure 4: Measures Definition Template (Neely, Richards et al. 1997)



## **Step 4 – Compile Questionnaire**

A questionnaire is created that will be distributed to a sample of stakeholders to gain their opinions on the performance of the Online Community and to encourage dialogue. This step is to partially compensate for any lack of variety of participants in Steps 1-3.

It is also undertaken to gain an insight into the stakeholders' perspective on importance and performance. Finally if there is a decision to capture "hard" values for these measures simultaneously then it is possible to relate the perceptions of the stakeholder to objective values.

Using the template (Appendix A3 – Community Evaluation Questionnaire) and the compilation of the measures that have been fully defined the questionnaire is completed.

The left-hand scale in the questionnaire ranks the importance that the respondent awards to each measure. This scale ranges from 1 (unimportant) to 5 (important), with increments in between.

The right-hand scale allows the respondent to indicate their opinion of the performance of the Online Community with respect to each individual measure. Again the scale ranges from 1 (poor) to 5 (excellent). It is important to note that this is a ranking and not an absolute value. For example the measure "number of posts" could be answered 5 indicating the respondent felt the number of posts was excellent, not to be confused with stating that there were 5 posts.

The output from this step is the questionnaire that is now ready for distribution.

## **Step 5 – Distribute and Complete Questionnaire**

The questionnaire that has been completed in Step 4 needs to be distributed so that the information can be gathered. During Step 5 the decision needs to be made as to what sample size is used and also the format of the data collection.



When considering sample size, the size of the Online Community is the major factor. If the Online Community has less than 40 members, it may be best to consider conducting a census i.e. surveying all members and stakeholders.

Some Online Communities are much larger with membership in excess of 1000. In this case it would be expensive and time consuming to conduct a census, so instead a sample should be utilised. It is recommended that a stratified sampling technique is employed, and that a least 10 responses are collected per band.

The second consideration on collecting the data through the questionnaire is whether interviews or a postal survey should be involved. This decision should be made based on the time and financial constraints of the Online Community.

The output from this step is a batch of completed questionnaires.

## **Step 6 – Collate and Interpret Results on Current Performance**

The main object of this step is to extract the data from the questionnaires that is related to performance and generate some meaningful conclusions and actions. This will help to create understanding about the current situation from the stakeholders' perspective. It will establish whether they feel that the Online Community is "doing the right things" and also whether the Online Community is "doing these things well".

To gain a greater understanding of the responses regarding performance it will be necessary to construct a results' table. This will use the data from the right-hand scale in the questionnaire. The results' table should display counts for each of the responses against the individual measures. Table 1 shows an example of a typical line in the response table.

Once the results have been tabularised it is possible to generate the main conclusions and also to form a list of actions. The actions to be instigated will be determined mainly with regard to the target/action combination set out in the Online Community Measures Definition Report produced in Step 3.

It may also be necessary to look at subsets of the data based on stakeholder category.



Measure	1	2	3	4	5	DK
Quality of New ideas	0	0	2	8	5	3

Table 1: Typical Entry in Performance Results Table

The main output from this step is a list of actions to improve the Online Community Performance.

Step 7 – Review Importance Rankings from Questionnaire

The step counteracts any inadequacies introduced into the measures through limited participation from all stakeholder groups in Steps 1-3. Through the completed questionnaire it is possible to gather data on the importance of each of the specified measures in the view of individual stakeholders. The information extracted from this data is then used to modify the questionnaire and also the measurement behaviour.

Once more a results table is constructed, this time using the responses in the left-hand scale. Each row in the results table should display the measure and a tally of the importance rankings (Table 2).

1	2	3	4	5	Measure
0	0	2	8	5	Quality of New ideas

Table 2: Typical Entry in Importance Results Table

Once the table has been studied it is possible to generate a list of the main conclusions. This may lead to changes in the measures captured and subsequently the questionnaire.

For example, if the data indicates that a measure is not of interest to any of the stakeholders, then despite preconceptions, it is not cost effective to continue collecting it. Therefore it should be removed. In a similar manner, this is the stage when it may be necessary to add new measures depending on any comments received in Part III of the questionnaire.



The main output from this step is a list of changes to the questionnaire and an updated list of measures. Any new measure identified requires an entry in the Online Community Measures Definition Report. The data for this can be collected during Step 8.

## **Step 8 – Review Process and Formalise Triggers**

There are two main issues addressed in Step 8. Firstly a review is conducted of the activities to date with regard to the evaluation of the Online Community so that the main learning points can be shared and acted upon. Secondly, the process to capture the information must be formalised so that a snapshot of the performance can be taken on an ongoing basis.

The conclusions and action lists from Step 6 should be reviewed, in terms of the action to be undertaken, by whom and by what date.

Similarly the conclusions from Step 7, the importance ranking, also need to be reviewed. At this stage any new measures added on.

Step 7 must now have an associated definition completed and added to the Online Community Measures Definition Report. This will be undertaken in the same manner as in Step 3, with the aid of the template (Figure 4) and the guide (Appendix A2 – Measures Definition Template Guide). The questionnaire must also be updated to reflect the amended measures.

The final stage in the evaluation process is to formalise the activities. Two main questions need to be addressed:

- How often should the questionnaire be issued?
- When should the content of the questionnaire be fully revised?

Question one relates to the frequency of questionnaire distribution, for example, quarterly, annually, etc. The main factors that affect the decision are the cost and also the interaction levels of the Online Community. In a low interaction community that posts once every week, the increased effort related to completing the questionnaire may advocate annual surveys. Whereas in a high-interaction Online



Community that contributes on an hourly basis it may be possible, and necessary to gauge changes in opinion on a quarterly footing.

Question two recognises that events, even those within the control of the Online Community, may necessitate a change in business objectives. In such a case it will be vital to repeat the process from the beginning, ensuring that the stakeholder situation has not also changed, and then generating any new stakeholder or process measures.

Such triggers should be discussed with the participants, although it is conceded that not every eventuality will be considered. Examples of possible triggers include company/community takeovers, changes in legislation or the withdrawal of a large number of active members.

Alternatively an Online Community may consider that this full review should take place periodically, regardless of dramatic changes in business objectives, as part of the overriding evaluation process that is to be implemented.

There are three outcomes from this step: a revised Online Community Measures Definition Report; a revised questionnaire; and a formally documented evaluation process.

## **Future Development**

It is intended that the process will be refined during several pilot studies that are planned. This document represents the original version of the process.

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## **Appendix A1 – Summary of Community Types**

The main features of each type of community are discussed in the following section. However, it should be noted that the boundaries between the classes are not precise.

### ***Communities of Transaction (COTs)***

The main purpose of this community is to allow some form of trading to take place. There is little relationship depth with members dropping in and out infrequently. A Community of Transaction can be an e-marketplace, company sponsored site or an auction site. There are fairly restricted relationships between members if there are relationships at all. People may post reviews but it is unlikely that other community members will engage in dialogue with a reviewer, or even seek out all their subsequent reviews.

The prime benefits that can be realised from this type of community are efficiency of transactions (purchasing, invoicing, logistics), easier comparisons of products/services and an efficient mechanism to provide customer support. One classic example of this type of community from literature is Amazon. People visit to purchase a book at their own convenience. They may or may not interact with others through reviews.

### ***Communities of Interest (COIs)***

Essentially people focus around a shared interest in a subject such as a hobby, or a product and exchange information. The relationship is more demanding in terms of depth as members interact with others who share their interests.

The line between Communities of Interest and Communities of Transactions can be blurred. For example, a member that has a particular type of PC may visit a manufacturer's transactional site to find out what sort of memory chip is required to upgrade the specification. However, instead he may visit a community who have an interest in modifying PCs regardless of manufacturer.



The prime function of this type of community is to allow people with a common interest to meet. It allows members to share information, including having access to experts on the subject. This access to experts, or finding out basic information on a subject of interest links closely to the concept of Learning Networks. It also provides a support facility, whether this is emotional in terms of healthcare or technical such as the PC memory upgrade discussed above.

Another classic example of this type of community is Motley Fool, a community set up to serve the needs of individual investors. It provides information on shares, give tips on how to decide when to buy and sell and market analysis. It also provides discussion boards so that individual members can interact.

Campaigning Communities and Social Communities can be considered as Communities of Interest as they focus on bringing together people who have similar ideals or share a common background. In addition some Campaigning Communities can extend beyond a Community of Interest into a Community of Practice if the members wish to promote best practice within their field. One example of this is the Advanced Drivers Association. The members share a common interest in the best techniques to employ when driving, but they also actively promote safety awareness as a critical skill.

### ***Communities of Practice (COPs)***

The main objective of this type of community is to develop the field of interest. Members meet to share information and knowledge, and in doing so promote better methods and practices. It is an extension of the Community of Interest; the members are not just interested in the subject, they want to develop it further. The relationships are deeper since interactions are more frequent and intense.

The main benefits that can be achieved through these communities are assistance in problem solving, validating knowledge and documenting best practice. One example of the use of COPs is by Chrysler (Wenger, McDermott et al. 2002), which in the late 1980s was a typical large manufacturing organisation with functional units. This led to a slow design cycle with Chrysler taking up to five years to produce a new model compared to their competitors' achievements of three years. In order to compete,



Chrysler made the decision to reorganise around the vehicle platform instead of functions, thus reducing the design time to around two and a half years.

However, this improved structure was not without its own problems. Removing the functional element from the engineers isolated specialists and caused a host of other issues such as repeated mistakes, similar versions of the same product with slight variations and the failure to propagate innovations.

Former colleagues from functional areas, but now from different platforms, started to meet informally to discuss issues pertinent to their specialist area. Management made the decision to support these meetings and the concept of “Tech Clubs” was born. The Tech Clubs or COPs within Chrysler have an official role in the company too, they document engineering knowledge that they can use at a later date, standardise working practices and explore new technologies with suppliers.

### ***Communities of Exploration (COEs)***

The main objective in a Community of Exploration is to encourage discovery. This is a restricted access group with small numbers (less than 15). Levels of trust are very high and people are excited to share and collaborate. It is a safe environment for “bouncing ideas around” without damaging the members’ professional reputations.

This concept, if it exists in practice, as there is no current evidence only a presentation from Snowden (Snowden 2003) at a conference, would provide opportunities for researchers to explore “new” knowledge with like-minded contemporaries in a safe environment.

It is essentially a space where the essence of research can be revived – the unthinkable is discussed and ways in which it can be applied. In this community there is also the opportunity to identify new areas in which research can be initiated.



## Appendix A2 – Measures Definition Template Guide

### *Title*

The title of the measure – should be self explanatory

Examples:

- Customer service – adherence to customer schedules
- User support – time to resolve helpdesk issues

### *Purpose*

What you are trying to achieve by adopting the measure

Examples:

- Enable us to monitor the rate of improvement driving down total cost
- To enable us to monitor the tools that are most commonly used so that these can be promoted

### *Relates to*

The business objective to which the measure relates

Examples:

- Meet quality standard
- Increase competitive advantage of member companies

### *Target*

An explicit target, including a timescale, makes it easier to judge the improvement rate.

Examples:

- Achieve 98% delivery performance by end of 2004
- Achieve weekly logons by 40% of registered users by end of June 2004



## ***Formula***

This is how the performance is measured and will affect behaviour. Take care not to create poor performance by people that are striving to meet their targets. Do NOT measure something over which the person has no control.

Examples:

- Percentage of pieces to arrive at customer destination when promised
- Number of help calls not resolved to the satisfaction of the user with 48 hours

## ***Frequency***

How often the data should be collected and reported. It is related to the importance of the measure and the volume of data generated.

Examples:

- Weekly
- Monthly

## ***Who measures?***

This identifies the person that collects and reports the data. Often it will be different from the person that acts on the data.

Examples:

- Sales Manager
- Web Site Editor

## ***Source of the data***

This is to make sure the source of the data is consistent. The location from which the raw data is collected should be specified.



Examples:

- Invoice sales record
- Server log

### ***Who acts on the data?***

This identifies the person that will act on the data collected.

Examples:

- Production Manager
- Network Manager

### ***What do they do?***

Unacceptable or acceptable performance must lead to some action or loop back into the management process. This need not be prescriptive.

Examples:

- Setup continuous improvement group to identify reasons from poor performance and generate recommendations for improvement
- Initiate feedback sessions with members to understand the type of functionality required and generate a priority list for future development



Appendix A3 – Community Evaluation Questionnaire

Introduction

This questionnaire forms one part of an evaluation strategy within the [insert Online Community]. The purpose of the questionnaire is to collect data from individuals involved in using or supporting the [insert Online Community]. The results from this questionnaire have three purposes:

1.

To allow the Community Managers to act on user concerns
2.

To assist in the formation and review of the [insert Online Community] development strategy
3.

To evaluate the community

Your help, by completing this questionnaire, will be greatly appreciated. All responses will be treated as anonymous unless you choose to identify yourself in the Further Comments section. If this is the case we may contact you for further details about your responses.

Part I – General Information

This questionnaire is being administered to many users and supporters of the [insert Online Community]. For classification purposes, please provide the following information.

- 1)

Within which location is your organisation located?

[ ] [insert location]

[ ] [insert location]
- 2)

Which of the following roles represents your involvement with [insert Online Community]? Please select as many as are appropriate.

[ ] [insert roles]

[ ] [insert roles]

[ ] Other – please state .....



**Part II – Performance Perception**

In this part of the questionnaire, a list of measures appears down the centre of the page, flanked by a sequence of numbers from 1 to 5 on the left-hand side of the page and also on the right-hand side of the page. Please see below for an example:

1 2 3 4 5

Quality of contribution to bulletin board

1 2 3 4 5 DK

Each group of numbers represents a question relating to the measure, thus for each measure there are two answers required. Please circle the number in each group that represents your opinion on the question.

**Left-Hand Scale**

The left-hand scale indicates the importance of that specific measure to you. If your opinion is that the measure is unimportant please circle “1”. On the other hand, if you think that the measure is of utmost importance please circle “5”. The intervening numbers can be used to indicate an opinion that lies between the two extremes. In the example above circling “1” would indicate that you thought the quality of posts published to the Bulletin Board by the community is unimportant.

**Right-Hand Scale**

The right-hand scale indicates how well you consider the community is currently performing with regard to the specific measure. “1” represents it is failing badly and “5” represents that it is performing very well. Please use the intervening numbers to indicate an opinion that lies between the two extremes. In the example above circling “1” would indicate that you thought the community was failing to publish quality posts to the Bulletin Board. If you have no opinion on the measure or you feel you have insufficient data to indicate its performance please select “DK”.



Importance	Measure	Performance
Unimportant...Important		Poor.....Excellent
1 2 3 4 5	[insert measure]	1 2 3 4 5 DK
1 2 3 4 5	[insert measure]	1 2 3 4 5 DK

Part III – Further comments

Do you have any other comments that you would like to share about your community?

.....

.....

.....

.....

.....

.....

This is the end of the questionnaire. Thank you for your co-operation and time.



*If you wish you may complete the section on personal details.*

Name.....

email.....



Appendix B: Evaluation Pack

Note: This document refers to the original 8-step method of evaluation that was used in the first pilot study rather than the 4-step format that is discussed in the Executive Summary. The contents of these methods are the same; it is merely the emphasis that has changed. The steps can be translated in the following manner:

4-Step Method Discussed in Executive Summary	8-Step Method used in Original Pilot Study
1a: Establish the Online Community Type	1: Establish the Online Community Type
1b: Verify Appropriate Online Community Template	2: Verify Appropriate Online Community Template
2a: Fully Define Measures 2b: Add Special Initiative Measures	3: Customise Evaluation to Support Special Initiatives and Fully Define Measures
3a: Compile Questionnaire	4: Compile Questionnaire
3b: Distribute Questionnaire	5: Distribute and Complete Questionnaire
3c: Collect Information 3d: Interpret Performance Results	6: Collate and Interpret Results on Current Performance
3c: Collect Information 3e: Interpret Importance Results	7: Review Importance Rankings From Questionnaire
4a: Review Administration Process 4b: Formalise Triggers	8: Review Process and Formalise Trigger



## Evaluation of Online Communities Process

**Step 1:** Establish the type of community that is to be evaluated (Community of Transaction, Community of Interest, Community of Practice, Community of Exploration).

**Document:** [Types of Community Flowchart.doc](#)

**Step 2:** Take community template and verify:

- a) Stakeholders involved
- b) If it is necessary to have multiple groups within each stakeholder category
- c) The main strategy that the online community is supporting
- d) The process that are needed to enable the strategy
- e) The measures that are associated with the above areas

**Documents:**

- [Community of Transaction.pdf](#)
- [Community of Transaction - details.pdf](#)
- [Community of Interest.pdf](#)
- [Community of Interest – details.pdf](#)
- [Community of Practice.pdf](#)
- [Community of Practice - details.pdf](#)
- [Community of Exploration.pdf](#)
- [Community of Exploration – details.pdf](#)

**Step 3:** Customise the evaluation to support special initiatives through brainstorming and fully define measures.

**Document:** [Measures Definition Template.doc](#)



**Step 4:** Compile questionnaire based on the outcomes of Step 1-3.

**Document:** **Community Evaluation Questionnaire.doc**

**Step 5:** Identify respondents and then send out/interview to complete questionnaire.

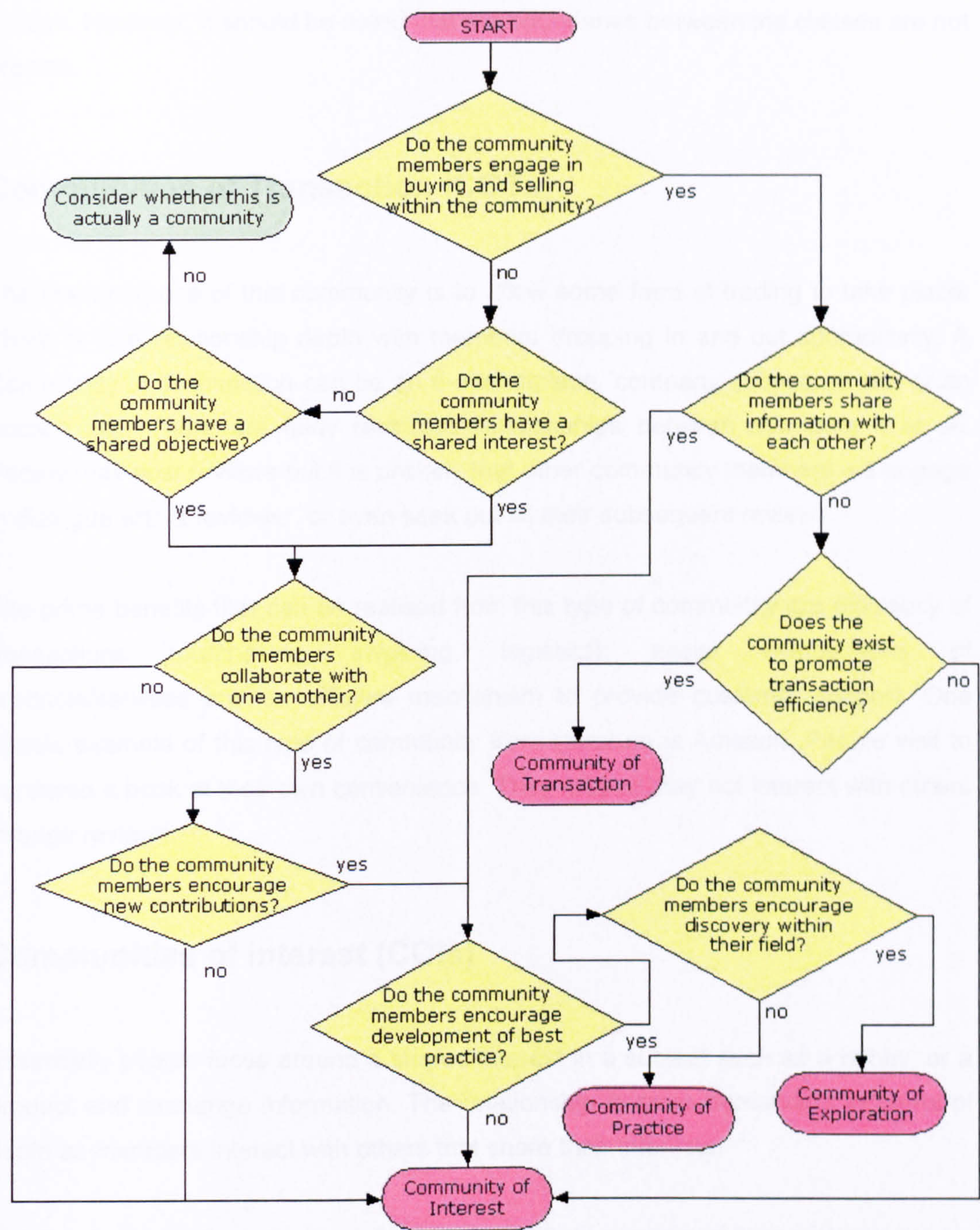
**Step 6:** Collate and interpret results on current performance.

**Step 7:** Review questionnaire results with regard to importance of measures to stakeholders. This can then be used as an input to Step 8 and also this feedback will be used to modify the template used in Step 2.

**Step 8:** Decide on the review process and set review triggers/frequency.



Flowchart to help identify the type of community for evaluation





The main features of each of these types of community are discussed in the following section. However, it should be noted that the boundaries between the classes are not precise.

## **Communities of Transaction (COTs)**

The main purpose of this community is to allow some form of trading to take place. There is little relationship depth with members dropping in and out sporadically. A Community of Transaction can be an e-marketplace, company sponsored site or an auction site. There are fairly restricted relationships between members if at all. People may post reviews but it is unlikely that other community members will engage in dialogue with a reviewer, or even seek out all their subsequent reviews.

The prime benefits that can be realised from this type of community are efficiency of transactions (purchasing, invoicing, logistics), easier comparisons of products/services and an efficient mechanism to provide customer support. One classic example of this type of community from literature is Amazon. People visit to purchase a book at their own convenience. They may or may not interact with others through reviews.

## **Communities of Interest (COIs)**

Essentially people focus around a shared interest in a subject such as a hobby, or a product and exchange information. The relationship is more demanding in terms of depth as members interact with others that share their interests.

The line between Communities of Interest and Communities of Transactions can be blurred. For example, a member that has a particular type of PC may visit a manufacturer's transactional site to find out what sort of memory chip is required to upgrade the specification. However, instead he may visit a community who have an interest in modifying PCs regardless of manufacturer.

The prime function of this type of community is to allow people with a common interest to meet. It allows members to share information, including getting access to



experts on the subject. This access to experts, or finding out basic information on a subject of interest links closely to the concept of Learning Networks.

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However, this improved structure was not without its own problems. Removing the functional element from the engineers, isolated specialists and caused a host of other issues such as repeated mistakes, similar versions of the same product with slight variations and the failure to propagate innovations.

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The main objective of a Community of Exploration is to encourage discovery. This is a restricted access group with small numbers (less than 15). Levels of trust are very high and people are excited to share and collaborate. It is a safe environment for “bouncing ideas around” without damaging the member’s professional reputation.

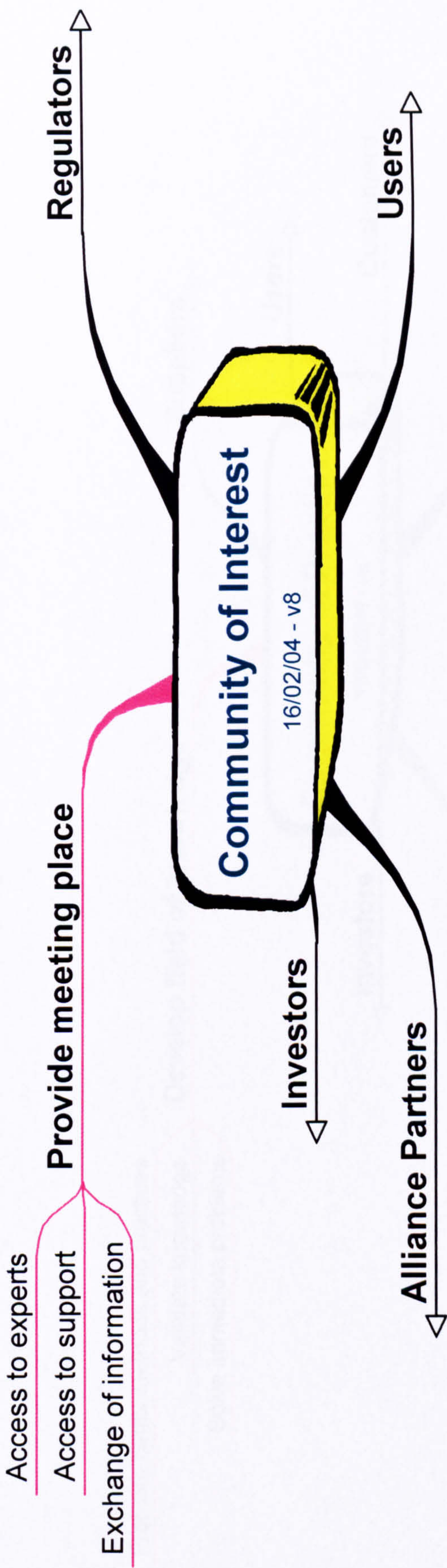
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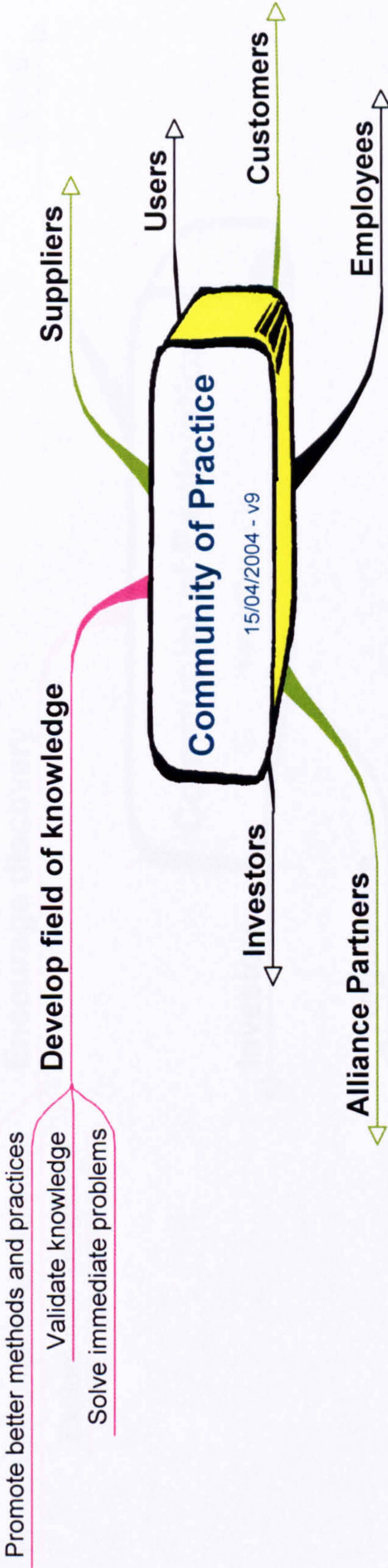








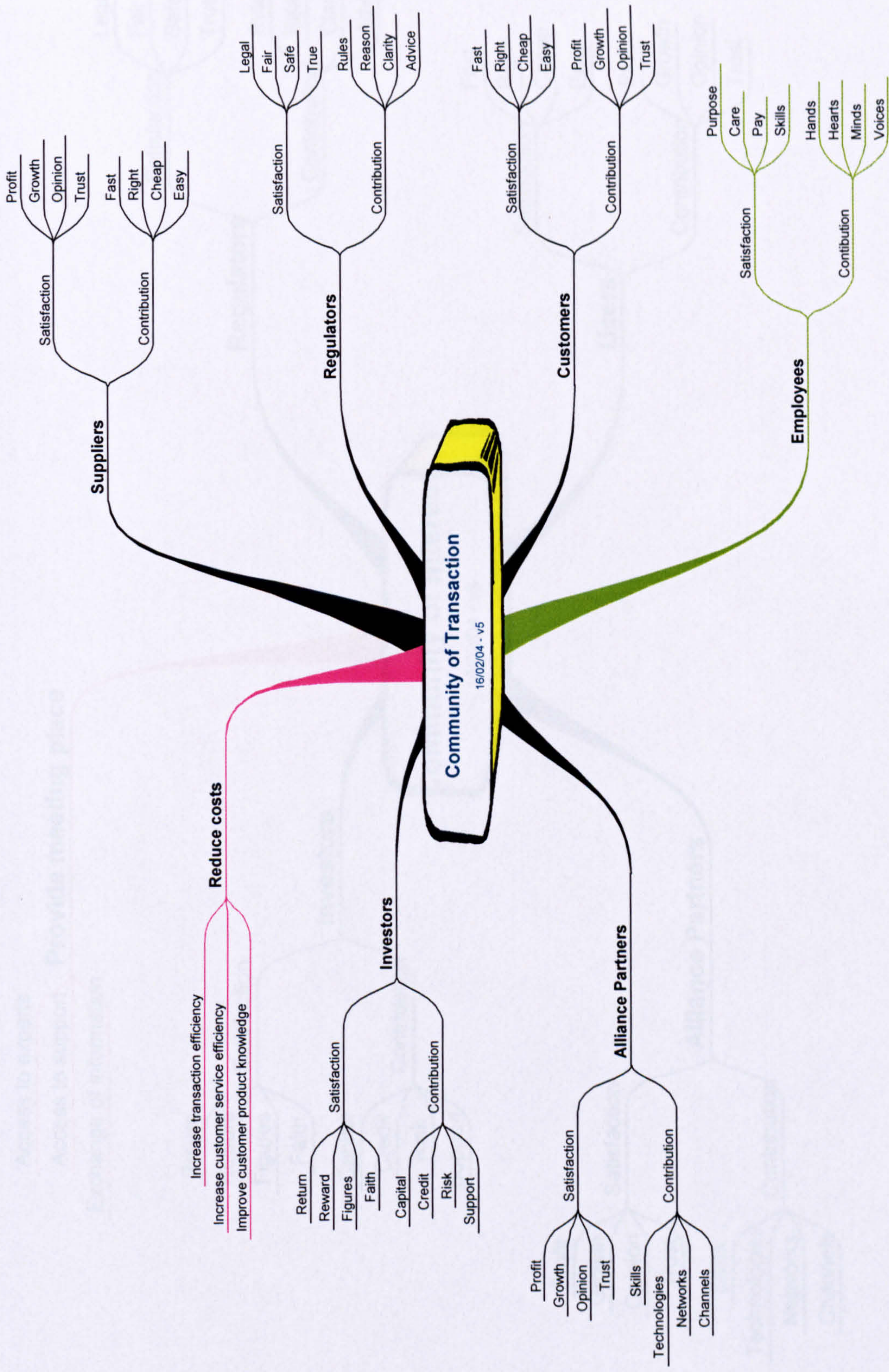




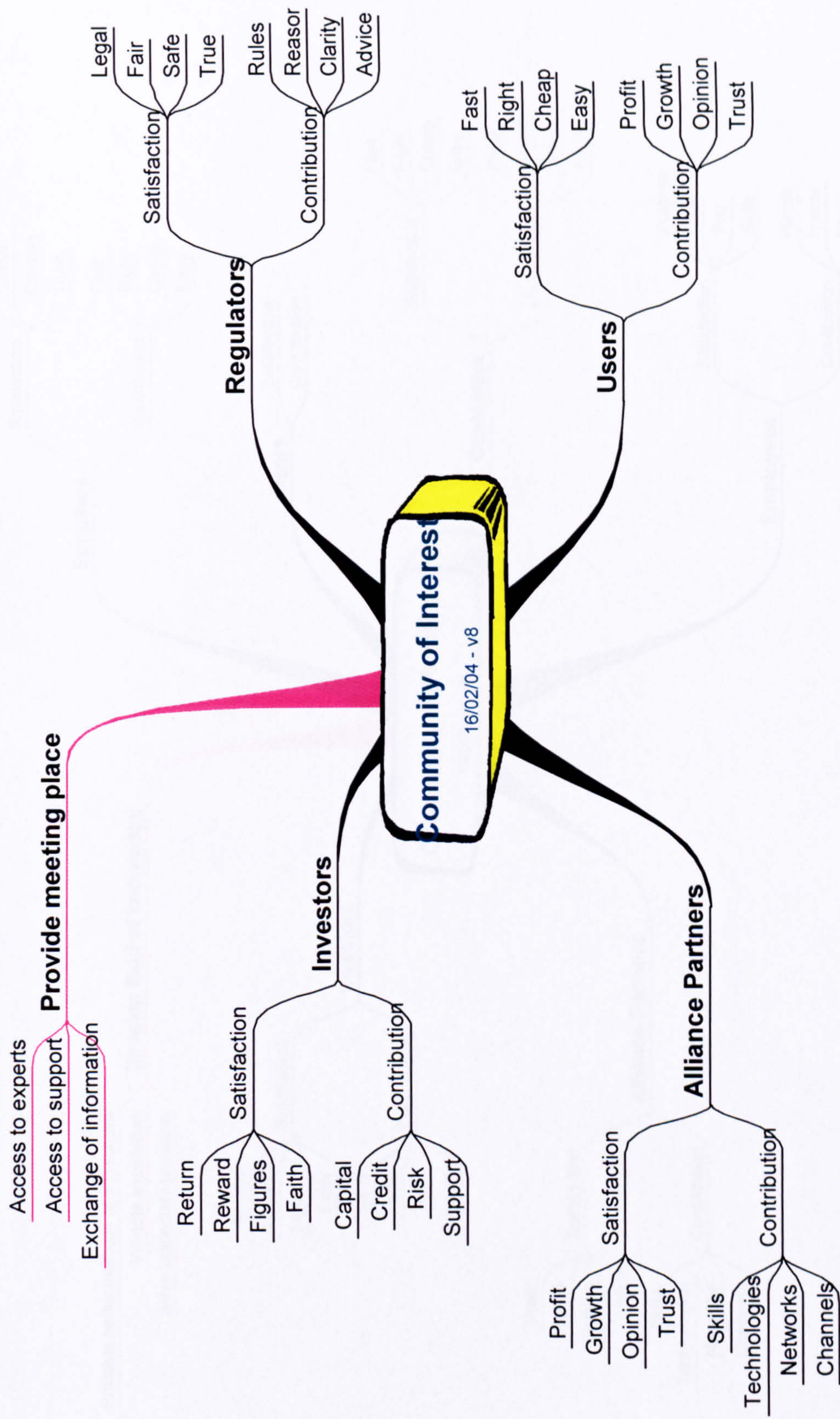




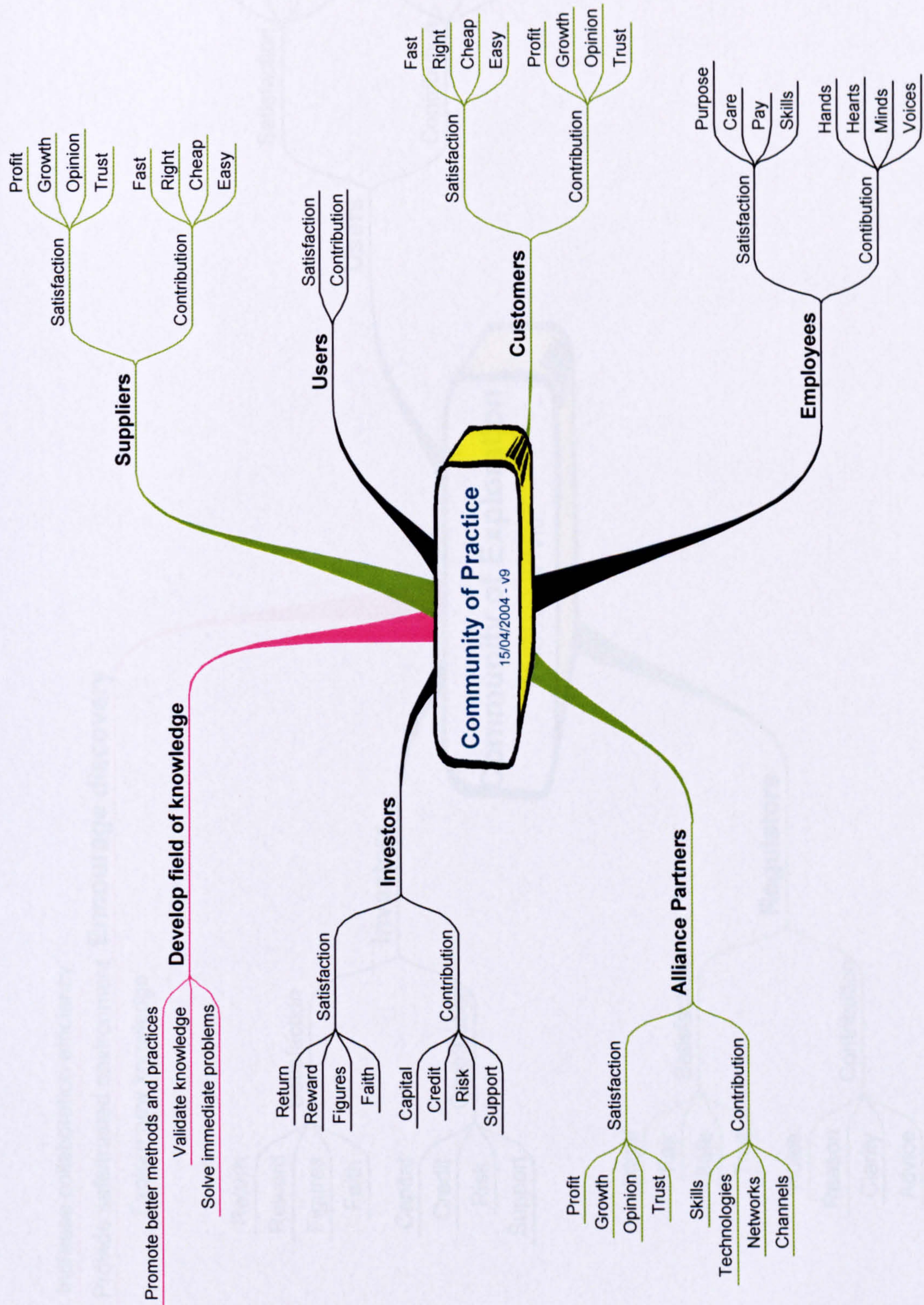








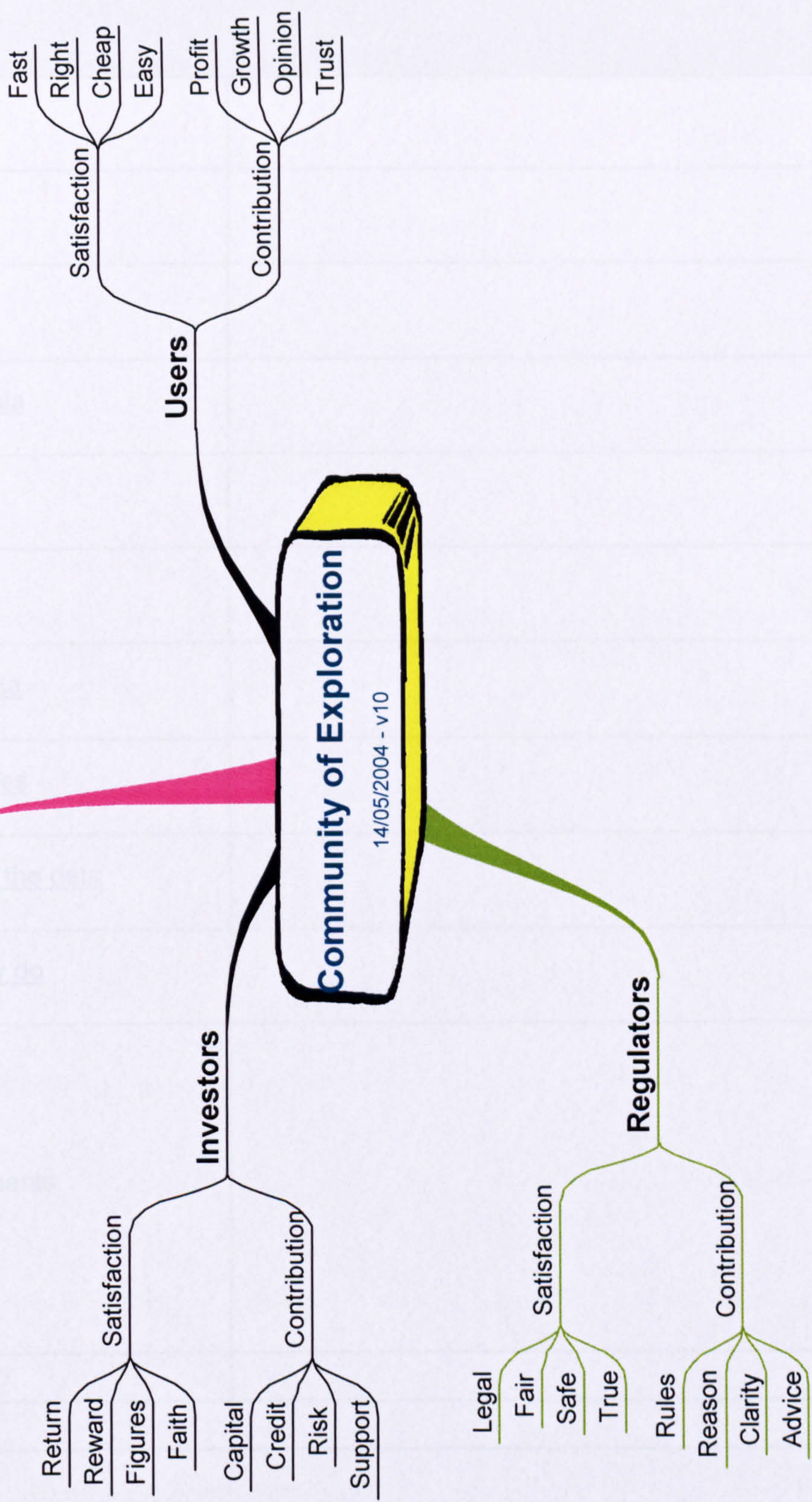






Increase collaboration efficiency  
Provide safe/trusted environment  
Explore new knowledge

**Encourage discovery**





Measures Definition Template	
<u>Measure</u>	
<u>Purpose</u>	
<u>Relates to</u>	
<u>Metric/Formula</u>	
<u>Target level</u>	
<u>Frequency</u>	
<u>Source of data</u>	
<u>Who measures</u>	
<u>Who acts on the data</u>	
<u>What do they do</u>	
Notes/Comments	
Completed by	
Date	

(Neely, Richards et al. 1997)



## Title

The title of the measure – should be self explanatory

Examples:

- Customer service – adherence to customer schedules
- User support – time to resolve helpdesk issues

## Purpose

What you are trying to achieve by adopting the measure

Examples:

- Enable us to monitor the rate of improvement driving down total cost
- To enable us to monitor the tools that are most commonly used so that these can be promoted

## Relates to

The business objective to which the measure relates

Examples:

- Meet quality standard
- Increase competitive advantage of member companies

## Target

An explicit target, including a timescale, makes it easier to judge the improvement rate.

Examples:

- Achieve 98% delivery performance by end of 2004
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## Formula

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Examples:

- Set up continuous improvement group to identify reasons from poor performance and generate recommendations for improvement
- Initiate feedback sessions with members to understand the type of functionality required and generate a priority list for future development



Introduction

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To allow the Community Managers to act on user concerns
5.

To assist in the formation and review of the [insert Online Community] development strategy
6.

To evaluate the community

Your help, by completing this questionnaire, will be greatly appreciated. All responses will be treated as anonymous unless you choose to identify yourself in the Further Comments section. If this is the case we may contact you for further details about your responses.

Part I – General Information

This questionnaire is being administered to many users and supporters of the [insert Online Community]. For classification purposes, please provide the following information.

3) Within which location is your organisation located?

- ☐

[insert location]
- ☐

[insert location]

4) Which of the following roles represents your involvement with [insert Online Community]? Please select as many as are appropriate.

- ☐

[insert roles]
- ☐

[insert roles]
- ☐

Other

–

please

state
- .....



Part II – Performance Perception

In this part of the questionnaire, a list of measures appears down the centre of the page, flanked by a sequence of numbers from 1 to 5 on the left-hand side of the page and also on the right-hand side of the page. Please see below for an example:

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Quality of contribution to bulletin board

1 2 3 4 5 DK

Each group of numbers represents a question relating to the measure, thus for each measure there are two answers required. Please circle the number in each group that represents your opinion on the question.

Left-Hand Scale

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The right-hand scale indicates how well you consider the community is currently performing with regard to the specific measure. “1” represents it is failing badly and “5” represents that it is performing very well. Please use the intervening numbers to indicate an opinion that lies between the two extremes. In the example above circling “1” would indicate that you thought the community was failing to publish quality posts to the Bulletin Board. If you have no opinion on the measure or you feel you have insufficient data to indicate its performance please select “DK”.

Importance	Measure	Performance
Unimportant...Important		Poor.....Excellent
1 2 3 4 5	[insert measure]	1 2 3 4 5 DK
1 2 3 4 5	[insert measure]	1 2 3 4 5 DK



Part III – Further comments

Do you have any other comments that you would like to share about your community?

This is the end of the questionnaire. Thank you for your co-operation and time.



*If you wish you may complete the section on personal details.*

Name.....

email.....



## Community of Transaction Suggested Measures

Typical stakeholder wants and needs	Description	Measure
Investor return	Capital appreciation	<i>Return on capital employed</i>
Investor reward	Dividend distributions for loyal investors	<i>Level of dividend payment</i>
Investor figures	Data to review progress and to assess future prospects and risks	<i>Number of communications with stakeholders</i>
Investor faith	Confidence in the management team to consistently deliver on its promises	<i>Accuracy of performance forecast</i>
Investor capital	Enough working capital to operate and make value enhancing investment	<i>Capital availability - value of funds made available by investors</i>
Investor credit	Access to adequate borrowing facilities e.g. bank loan	Credit availability - value of credit/guarantees made available by investors
Investor risk	Taken by investors in exchange for providing capital or credit	<i>Gearing</i>
Investor support	Continued investor loyalty	<i>Investor turnover</i>
Alliance partner profit	Reasonable margins (to reinvest in improved products and services	<i>Alliance partner satisfaction level</i>
Alliance partner growth	Increase in sales volumes over time	Average alliance spend per user
Alliance partner opinion	Feedback on performance and suggestions as to ways of improving products and services	Number of suggestions passed to alliance partner
Alliance partner trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	<i>Demand forecast accuracy level</i>
Alliance partner skills	Access to specialist skill sets and expertise not easily recruited internally	Number of skills sets not available from alliance partner
Alliance partner technologies	Accessing to leading product, process or information technologies	Alliance partner responsiveness to requests
Alliance partner networks	Access to customers via successful sales networks (contacts, mailing lists, web sites, etc)	Number of visitors referred by partners website/newsletter
Alliance partner channels	Access to vital large-scale distribution channels too costly to replicate	Number of contributions to community from different channels



Typical stakeholder wants and needs	Description	Measure
Supplier profit	Reasonable margins (to reinvest in improved products and services)	<i>Average spend per supplier</i>
Supplier growth	Increase in sales volumes over time	<i>Level of business between company and supplier</i>
Supplier opinion	Feedback on performance and suggestions as to ways of improving products and services	Number of cost reductions suggestions
Supplier trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	<i>Accuracy of performance forecast</i>
Fast supplier	Rapid and reliable delivery of products and services offered	<i>Number of late deliveries</i>
Right supplier	High quality products and services	<i>Level of complaints about supplier product/service</i>
Cheap supplier	Reasonably priced products and services (that offer value for money)	<i>Perceived value for money</i>
Easy supplier	Low hassle transactions (easy to do business with)	Level of supplier non-conformances
Legal regulator	Companies must comply with the laws of the legal jurisdiction in which they reside	Number of jurisdictions that have inflicted a non-compliance
Fair regulator	Companies must not behave in ways that are monopolistic or anti-competitive	<i>Number of regulator non-compliances</i>
Safe regulator	Companies must not allow their customers, employees or the local community to be endangered	Number of unauthorised attempts that have been made to access community
True regulator	Companies must say what they do and do what they say they do (and so must their products)	Number of complaints about product/service
Regulator rules	Companies want rules to be applied that ensure they will not be competitively disadvantaged	<i>Number of new/revised regulations introduced</i>



Typical stakeholder wants and needs	Description	Measure
Regulator reasons	Companies want rules to have a sound purpose and which are reasonable to implement	Cost of compliance to data protection regulations
Regulator clarity	Companies want unambiguous rules that cannot be misconstrued by competitors/authorities	Number of regulations and best practices relating to e-commerce in force
Regulator advice	Companies want advice from regulators about investing new and existing rules	<i>Regulator responsiveness to requests</i>
Fast for customer	Rapid and reliable delivery of products and services offered	Downtime
Right for customer	High quality products and services	Number of customers that visit but fail to purchase
Cheap for customer	Reasonably priced products and services (that offer value for money)	Transaction cost per user
Easy for customer	Low hassle transactions (easy to do business with)	Time to close out transaction
Customer profit	Reasonable margins (to reinvest in improved products and services)	Number of sales to community members
Customer growth	Increase in sales volumes over time	No. of new customers referred by community
Customer opinion	Feedback on performance and suggestions as to ways of improving products and services	No. of customer contributions to community about product/service
Customer trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	Number of customers that have completed profile
Employee purpose	Work interest, job design, pride of accomplishment, essential support elements	Level of community usage
Employee care	Respect, fair and decent treatment, physical environment, policies, morale and prospects	Number of complaints regarding offensive comments or behaviour
Employee pay	Total comparative compensation package for joiners, incumbents and leavers	% of pay that is associated with community use



Typical stakeholder wants and needs	Description	Measure
Employee skills	Portable skills, availability and quality of training, access to knowledge and advice	Amount of time community accessed during working hours for training or advice
Employee hands	Headcount, skills sets inventory, productivity, flexibility	Number of transactions completed through community versus other channels
Employee hearts	Loyalty, commitment, experience and morale	<i>Level of employee satisfaction</i>
Employee minds	Qualifications, knowledge workers, project teams	Number of employees authorised to use the system that do not use it
Employee voices	Suggestions, team contributions, diversity and culture	Number of improvements to the community suggested

Typical processes	Measure
Increase transaction efficiency	Cost per transaction
Increase customer service efficiency	Customers contacting helpdesk/customers using self service
Improve customer product knowledge	Number of comparison tools used within community

Items in blue Italics indicate that this measure was extracted from The Performance Prism or the supporting Sample Measurement Catalogue (available from <http://www.som.cranfield.ac.uk/som/cbp/>).



## Community of Interest Suggested Measures

Typical stakeholder wants and needs	Description	Measure
Investor return	Capital appreciation	<i>Return on capital employed</i>
Investor reward	Dividend distributions for loyal investors	<i>Level of dividend payment</i>
Investor figures	Data to review progress and to assess future prospects and risks	<i>Number of communications with stakeholders</i>
Investor faith	Confidence in the management team to consistently deliver on its promises	<i>Accuracy of performance forecast</i>
Investor capital	Enough working capital to operate and make value enhancing investment	<i>Capital availability - value of funds made available by investors</i>
Investor credit	Access to adequate borrowing facilities e.g. bank loan	Credit availability - value of credit/guarantees made available by investors
Investor risk	Taken by investors in exchange for providing capital or credit	<i>Gearing</i>
Investor support	Continued investor loyalty	<i>Investor turnover</i>
Legal regulator	Companies must comply with the laws of the legal jurisdiction in which they reside	Number of jurisdictions that have inflicted a non-compliance
Fair regulator	Companies must not behave in ways that are monopolistic or anti-competitive	<i>Number of regulator non-compliances</i>
Safe regulator	Companies must not allow their customers, employees or the local community to be endangered	Number of unauthorised attempts that have been made to access community
True regulator	Companies must say what they do and do what they say they do (and so must their products)	Number of complaints about content
Regulator rules	Companies want rules to be applied that ensure they will not be competitively disadvantaged	<i>Number of new/revised regulations introduced</i>
Regulator reasons	Companies want rules to have a sound purpose and which are reasonable to implement	Cost of compliance to data protection regulations



Typical stakeholder wants and needs	Description	Measure
Regulator clarity	Companies want unambiguous rules that cannot be misconstrued by competitors/authorities	Level of awareness of virus and identity protection
Regulator advice	Companies want advice from regulators about investing new and existing rules	<i>Regulator responsiveness to requests</i>
Fast for user	Rapid and reliable delivery of products and services offered	Downtime
Right for user	High quality products and services	No of queries not resolved from FAQs
Cheap for user	Reasonably priced products and services (value for money)	Training cost per user
Easy for user	Low hassle transactions (easy to do business with)	Time to locate appropriate section within community
User profit	Reasonable margins (to reinvest in improved products and services)	Number of contributing users
User growth	Increase in sales volumes over time	No of new users
User opinion	Feedback on performance and suggestions as to ways of improving the product and services	User complaints/suggestions by type
User trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	Percentage return on satisfaction surveys
Alliance partner profit	Reasonable margins (to reinvest in improved products and services)	<i>Alliance partner satisfaction level</i>
Alliance partner growth	Increase in sales volumes over time	Average alliance spend per user
Alliance partner opinion	Feedback on performance and suggestions as to ways of improving products and services	Number of suggestions passed to alliance partner
Alliance partner trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	<i>Demand forecast accuracy level</i>
Alliance partner skills	Access to specialist skill sets and expertise not easily recruited internally	Number of skills sets not available from alliance partner



Typical stakeholder wants and needs	Description	Measure
Alliance partner technologies	Access to leading product, process or information technologies	Alliance partner responsiveness to requests
Alliance partner networks	Access to customers via successful sales networks (contacts, mailing lists, web sites, etc)	Number of visitors referred by partners website/newsletter
Alliance partner channels	Access to vital large-scale distribution channels too costly to replicate	Number of contributions to community from different channels

Typical processes	Measure
Access to experts	Number of experts
Access to support	Number of FAQs added
Exchange of information	Number of posts within a community

Items in blue Italics indicate that this measure was extracted from The Performance Prism or the supporting Sample Measurement Catalogue (available from <http://www.som.cranfield.ac.uk/som/cbp/>).



## Community of Practice Suggested Measures

Typical stakeholder wants and needs	Description	Measure
Investor return	Capital appreciation	<i>Return on capital employed</i>
Investor reward	Dividend distributions for loyal investors	<i>Level of dividend payment</i>
Investor figures	Data to review progress and to assess future prospects and risks	<i>Number of communications with stakeholders</i>
Investor faith	Confidence in the management team to consistently deliver on its promises	<i>Accuracy of performance forecast</i>
Investor capital	Enough working capital to operate and make value enhancing investment	<i>Capital availability - value of funds made available by investors</i>
Investor credit	Access to adequate borrowing facilities e.g. bank loan	Credit availability - value of credit/guarantees made available by investors
Investor risk	Taken by investors in exchange for providing capital or credit	<i>Gearing</i>
Investor support	Continued investor loyalty	<i>Investor turnover</i>
Supplier profit	Reasonable margins (to reinvest in improved products and services)	<i>Average spend per supplier</i>
Supplier growth	Increase in sales volumes over time	<i>Level of business between company and supplier</i>
Supplier opinion	Feedback on performance and suggestions as to ways of improving products and services	Number of cost reductions suggestions
Supplier trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	<i>Accuracy of performance forecast</i>
Fast supplier	Rapid and reliable delivery of products and services offered	Number of late design changes
Right supplier	High quality products and services	Number of improvements suggested to products or services
Cheap supplier	Reasonably priced products and services (that offer value for money)	<i>Perceived value for money</i>
Easy supplier	Low hassle transactions (easy to do business with)	Level of supplier non-conformances



Typical stakeholder wants and needs	Description	Measure
Fast for user	Rapid and reliable delivery of products and services offered	Downtime
Right for user	High quality products and services	No of tools/user requests for tools
Cheap for user	Reasonably priced products and services (value for money)	Training cost per user
Easy for user	Low hassle transactions (easy to do business with)	Call centre responsiveness - time to close out satisfactorily
User profit	Reasonable margins (to reinvest in improved products and services)	No. of problems resolved within acceptable time frame
User growth	Increase in sales volumes over time	No. of new users
User opinion	Feedback on performance and suggestions as to ways of improving the product and services	User complaints/suggestions by type
User trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	Percentage return on satisfaction surveys
Alliance partner profit	Reasonable margins (to reinvest in improved products and services)	<i>Alliance partner satisfaction level</i>
Alliance partner growth	Increase in sales volumes over time	Average alliance spend per user
Alliance partner opinion	Feedback on performance and suggestions as to ways of improving products and services	Number of suggestions passed to alliance partner
Alliance partner trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	<i>Demand forecast accuracy level</i>
Alliance partner skills	Access to specialist skill sets and expertise not easily recruited internally	Number of skills sets not available from alliance partner
Alliance partner technologies	Accessing to leading product, process or information technologies	Alliance partner responsiveness to requests
Alliance partner networks	Access to customers via successful sales networks (contacts, mailing lists, web sites, etc)	Number of visitors referred by partners website/newsletter



Typical stakeholder wants and needs	Description	Measure
Alliance partner channels	Access to vital large-scale distribution channels too costly to replicate	Number of contributions to community from different channels
Fast for customer	Rapid and reliable delivery of products and services offered	Downtime
Right for customer	High quality products and services	No of tools available for use
Cheap for customer	Reasonably priced products and services (that offer value for money)	Transaction cost per user
Easy for customer	Low hassle transactions (easy to do business with)	Time to close out transaction
Customer profit	Reasonable margins (to reinvest in improved products and services)	Number of sales supported by community
Customer growth	Increase in sales volumes over time	No of new customers referred by community
Customer opinion	Feedback on performance and suggestions as to ways of improving products and services	No of customer contributions to community
Customer trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	Number of customers that have completed profile
Employee purpose	Work interest, job design, pride of accomplishment, essential support elements	Number of topics available within community
Employee care	Respect, fair and decent treatment, physical environment, policies, morale and prospects	Number of complaints regarding offensive comments or behaviour
Employee pay	Total comparative compensation package for joiners, incumbents and leavers	% of pay that is associated with community contributions
Employee skills	Portable skills, availability and quality of training, access to knowledge and advice	Amount of time community accessed during working hours
Employee hands	Headcount, skills sets inventory, productivity, flexibility	Number of new practices documented
Employee hearts	Loyalty, commitment, experience and morale	Length of time since last post
Employee minds	Qualifications, knowledge workers, project teams	Number of offshoot communities
Employee voices	Suggestions, team contributions, diversity and culture	Number of justified suggestions for new tools



Typical processes	Measure
Promote better methods and practices	Number of processes documented as best practice
Validate knowledge	Number of documents published to community knowledge directory
Solve immediate problems	Time to close out subject queries in community

Items in blue Italics indicate that this measure was extracted from The Performance Prism or the supporting Sample Measurement Catalogue (available from <http://www.som.cranfield.ac.uk/som/cbp/>).



## Community of Exploration Suggested Measures

Typical stakeholder wants and needs	Description	Measure
Investor return	Capital appreciation	<i>Return on capital employed</i>
Investor reward	Dividend distribution for loyal investors	<i>Level of dividend payment</i>
Investor figures	Data to review progress and to assess future prospects and risks	<i>Number of communications with stakeholders</i>
Investor faith	Confidence in the management team to consistently deliver on its promises	<i>Accuracy of performance forecast</i>
Investor capital	Enough working capital to operate and make value enhancing investment	<i>Capital availability - value of funds made available by investors</i>
Investor credit	Access to adequate borrowing facilities e.g. bank loan	Credit availability - value of credit/guarantees made available by investors
Investor risk	Taken by investors in exchange for providing capital or credit	<i>Gearing</i>
Investor support	Continued investor loyalty	<i>Investor turnover</i>
Legal regulator	Companies must comply with the laws of the legal jurisdiction in which they reside	Number of jurisdictions that have inflicted a non compliance
Fair regulator	Companies must not behave in ways that are monopolistic or anticompetitive	<i>Number of regulatory non compliances</i>
Safe regulator	Companies must not allow their customers, employees or the local community to be endangered	Number of unauthorised attempts that have been made to access community
True regulator	Companies must say what they do and do what they say they do (and so must their products)	Number of complaints about content
Regulator rules	Communities want rules to be applied to ensure they will not be competitively disadvantaged	<i>Number of new/revised regulations introduced</i>
Regulator reasons	Companies want rules to have a sound purpose and which are reasonable to implement	Cost of compliance to data protection regulations



Typical stakeholder wants and needs	Description	Measure
Regulator clarity	Companies want unambiguous rules that cannot be misconstrued by competitors/authorities	Level of awareness of virus and identity protection
Regulator advice	Companies want advice from regulators about implementing existing and new rules	<i>Regulator responsiveness to requests</i>
Fast for user	Rapid and reliable delivery of products and services offered	Downtime
Right for user	High quality products and services	No. of tools/user requests for tools
Cheap for user	Reasonably priced products and services (value for money)	Training cost per user
Easy for user	Low hassle transactions	Call centre responsiveness - time to close out satisfactorily
User profit	Reasonable margins (to reinvest in improved products and services)	No. of new areas highlighted for future study
User growth	Increase in sales volume over time	No. of new users
User opinion	Feedback on performance and suggestions as to ways of improving the product and services	User complaints by type
User trust	Access to key information in order to aid supply chain efficiencies and to establish longer term collaborative ventures	Percentage return on satisfaction surveys

Typical processes	Measure
Increase collaboration efficiency	Length of time to produce output
Provide safe/trusted environment	Number of complaints about other users
Explore new knowledge	Number of topics explored in community

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